UNIVERSITY OF LONDON FRANCIS GALTON LABORATORY FOR NATIONAL EUGENICS

EUGENICS LABORATORY MEMOIRS. XVIII.

ON THE CORRELATION OF FERTILITY WITH SOCIAL VALUE. A COOPERATIVE STUDY

BY

ETHEL M. ELDERTON, AMY BARRINGTON, H. GERTRUDE JONES, EDITH M. M. DE G. LAMOTTE, H. J. LASKI, AND KARL PEARSON

LONDON:

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UNIVERSITY OF LONDON, UNIVERSITY COLLEGE

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Conclusions set in error p 72

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On the Correlation of Fertility with Social Value

A COOPERATIVE STUDY BY ETHEL M. ELDERTON, AMY BARRINGTON, H. GERTRUDE JONES, EDITH M. M. DE G. LAMOTTE, H. J. LASKI AND K. PEARSON.

Men are so engaged by the homely pressure of each day as it comes, and the natural solicitudes of common life are so instant, that a bad institution or a monstrous piece of misgovernment is always endured in patience for many years after the remedy has been urged on public attention. No cure is considered with an accurate mind, until the evil has become too sharp to be borne, or its whole force and weight brought irresistibly before the world by its more ardent, penetrative, and indomitable spirits.—Lord Morley.

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I. Introductory. It has been shown that if fertility be correlated with any anti-social hereditary character, then a population will fairly rapidly degenerate*. It has further been demonstrated that the more intellectual and energetic, the more prudent and well-to-do classes in this country have a lower fertility. But an investigation of the actual social value of an individual and his or her relative fertility has not yet been published. An inquiry as to this point was attempted some time back in the *Economic Review*, but the conclusion drawn was not justified, because it is absolutely needful to correct for age before the significance of the data can be determined. Suppose we take the working classes; there is not the least doubt that, notwithstanding the levelling influence of Trades Union rates of wages, wages do to a great extent measure the social value of an individual. In the long run the better man does get the better wages. Can we then simply answer the problem by asking whether the man with higher wages has the more children? Undoubtedly we should often conclude in this case that the better men had the more children! There is frequently quite a sensible correlation between age of the man and the amount of his wage. We shall indicate how the wage rapidly increases with early manhood, remains fairly constant during middle life and then rather

OK

ofthe butter man of the butter wages".

^{*} Pearson, Biometrika, vol. vII. pp. 259-275.

[†] Eugenics Laboratory Lecture Series, No. 1., p. 35. Dulau and Co.

[†] Vol. xx. pp. 25-40: see especially p. 31.

rapidly falls as old age comes on. Clearly, if we disregard this factor of age and simply table wages and living offspring, we shall have very misleading results. Up to 40 or 45, wages increase and family increases; beyond these ages wages decrease and surviving family decreases, because the family is not being added to and has been longer exposed to risk. Hence we must at least find the correlation of wage and size of family for a constant age.

The difficulties here are, for much of the available material, however, considerable. In some cases we have a record of the age of mother, but none of the age of father. There is such a high correlation, however, between age of father and mother, that on the average little difference is made by correlating for age of mother instead of for age of father. In the next place the regression lines are not straight unless we confine our ages within certain definite limits, and accordingly the simple formulae of linear partial correlation do not properly apply. The problem is therefore by no means a straightforward one, and although data on the point have been under consideration for two or three years past, there has been delay in publishing the results in order to meet the criticisms which occurred to us as likely to be raised.

SECTION II. ETHEL M. ELDERTON: DATA FROM BLACKBURN AND PRESTON.

Perhaps the most suggestive method was that first used by Ethel M. Elderton for Blackburn and Preston data, namely, to take births as they are reported to the local M.O.H., use the number of previous births to form the incomplete family and then correlate with wages correcting for age of father, if known, otherwise for that of mother. By this method the range of ages is confined to the reproductive period, during which the correlation of age and wage is approximately linear. It may be said that the age of marriage is a factor which ought to be considered. Physiologically it is of course important; socially it is also of importance, if we are considering whether it is postponed marriage, intentional limitation of family, or physiological loss of fertility which is at the source of our reduced birthrate. But it is of little importance for our present purpose. There has been surprisingly little change in the age at marriage of the working classes during the last fifty years, whatever there has been among the professional classes; we are only at present concerned with a differential birthrate in different wage classes, and for social purposes whether it is due to postponed marriage or intentional limitation is of secondary importance, till we have established its existence and come to consider its possible cure.

In dealing with a manufacturing town, however, another factor of considerable importance comes in—the employment of the mother*. Even if we correct for age of mother,—the older mothers being unemployed—there still remains a correlation

| * | Mean | number of | children born alive, | when mother is | : | |
|---|------|-----------|----------------------|----------------|------------|-------|
| | | Not | Employed before | After birth, | Before and | All |
| | | employed | birth, not after | not before | after | cases |
| | | 5.3 | 3.6 | 3.4 | 3.0 | 2.0 |

Correlation of employment before confinement and number of children born alive = 417.

ON THE CORRELATION OF FERTILITY WITH SOCIAL VALUE 3

of 0.17 between employment of mother and number of children, i.e. the unemployed mothers have the more children. This does not, however, appear to be a correlation between good social condition and fertility, because it is the young women who work in the factory, and as these women come to have more children they are bound to give up factory work and stay at home to look after their families*. Miss Elderton in her work has therefore corrected for both age of mother and her employment, which makes a still further slight increase in the correlation coefficients. The total number of families investigated at Blackburn was only about 500. In the first record the number of children means those that have been born, i.e. the gross family. In the second record the number living at the time of the investigation.

Table A. Partial Correlations of size of Family and Bad Home Conditions.

| | | | Correlated pair | Gross family for constant age and employment of mother | Net family for constant age of mother only |
|-------|--------|----|----------------------------------|--|--|
| Large | family | | dirty home | 0·41 ± ·02 | 0·25 ± ·03 |
| 9.9 | 22 | 22 | insufficient food | $0.35 \pm .03$ | $0.13 \pm .03$ |
| 29 | 23 | 39 | food of poor quality | $0.33 \pm .03$ | $0.29 \pm .03$ |
| 22 | 99 | 22 | low rent | $0.31 \pm .03$ | $0.19 \pm .03$ |
| ,, | 22 | 22 | small number of rooms | 0.15 + .03 | 0.12 + .03 |
| 27 | 22 | 22 | bad health of mother | $0.00 \pm .03$ | $-0.09 + .03 \dagger$ |
| | 22 | 99 | bad health of father | 0.21 + .03 | 0.11 + .03 |
| " | | | unskilled work of father | $0.23 \pm .03$ | 0.10 + .03 |
| 22 | 22 | 22 | low regular wage of father | 0.23 ± 0.03 | 0.09 + .03 |
| 22 | 22 | 22 | | | |
| . 72 | 22 | 22 | low wages, regular and irregular | | $0.12 \pm .03$ |
| 22 | 99 | 33 | irregular employment of father | $0.17 \pm .03$ | $0.09 \pm .03$ |

It is obvious that the correlations for net family are generally lowered, but still the bad home conditions are associated with the larger family.

The question of the relation of drink in mother or father to number of children is rather a difficult one for the Blackburn data. The parents were divided into four categories, (i) teetotallers, (ii) abstemious, (iii) said to be abstemious, (iv) drinkers. The difficulty arises over the third category. It seemed to us at first to cover a class in which there was a denial of drink, but about which the lady visitors had their doubts. Dr Greenwood, M.O.H. for Blackburn, however, tells us, on a request for further definition of the term, that "the class said to be abstemious were for the most part too poor to obtain drink." It is quite clear from the data themselves that they are a class of extreme poverty and bad social condition. We have the following results for number of children:

^{*} There is also another influential point: when the mother's earnings are essential owing to the needs of the home the deliberate limitation of the family enables her to continue her employment. We have evidence that the methods of directly limiting the family are more or less openly discussed inside the factories themselves.

[†] Bad health in the mother means bad health in the child and a higher child-deathrate. The correlation in the case of the father is lowered, but not rendered negative.

TABLE B.

| | A Charles | Mother | Father |
|------|-----------------------|--------|--------|
| (i) | Teetotaller | 2.81 | 2.72 |
| (ii) | Abstemious | 3.51 | 3.40 |
| iii) | Said to be abstemious | 4.75 | 4.84 |
| (iv) | Drinkers | 6.19 | 4.57 |

If we correlate these results for size of family with extent of drinking habits, we do not feel certain where we should place the "said to be abstemious." All we can do is to place them (i) with the sober, and then (ii) with the drinking class. We have the following results:

Table C. Correlation of size of Family and Drinking Habits.

| , | Mot | ther | Fat | her |
|--|-------------------------------|----------------------------------|-------------------------------|--------------------------------|
| Raw values Corrected for age of mother | (i) ·42 ± ·03 ·34 ± ·03 | (ii) $.34 \pm .03$ $.35 \pm .03$ | (i) •19 ± •03 •10 ± •03 | (ii) ·32 ± ·03 ·28 ± ·03 |

Whichever way we regard the group, it will be manifest that there is a sensible correlation between drinking of the parents and size of their family*.

Looking at our first table it might at first sight be said that a dirty home and insufficient food are the direct results of a large family, but a large family does not involve low and irregular wage for father, nor his adopting unskilled labour to earn his living. It is quite true that if the size of mother's family remains constant, the condition of the home improves as she grows older. Thus

Correlation of home-conditions and mother's age
$$=-\cdot 162$$

,, ,, size of family $=-\cdot 389$
,, mother's age and size of family $=+\cdot 697$

and thus correlation of home-conditions and mother's age for constant size of family = + 165, i.e. the home would better as the mother grows older but for increasing size of family. Therein lies the numerical expression of one reason why the family is limited. But this very investigation shows by the smallness of the resulting correlation that the dirty home is not only due to large size of family. For constant age of mother the larger family comes from the dirtier home in a much more marked degree (0.41).

It is desirable to indicate that these results for Blackburn are not exceptional, and Miss Elderton has worked out like correlations for Preston in the case of over 600 families with babies born in 1908. In the case of Preston as at Blackburn the

^{*} This confirms the results obtained by Elderton and Pearson for the Edinburgh and Manchester data: see *Eugenics Laboratory Memoirs*, No. x., A First Study of the Influence of Parental Alcoholism on the Physique and Ability of Offspring. Dulau and Co., 1910.

employed mothers, even for constant age of mother, have smaller families than the unemployed mothers: a result due to women with more children being practically obliged to stay away from the mills. There is little doubt also that limitation of the family is more discussed and practised among the mill hands. It has therefore seemed desirable to correct the correlations between bad parental and home conditions not only for age of mother, but also for the employment of mother. The following results were reached:

Table D. Correlations of size of Family and Social Status. Preston.

| | | | For constant age of mother | For constant age of mother and constant grade of employment |
|-----|----------|---------------------------------------|----------------------------|---|
| | imily ar | nd dirty homeunskilled work of father | ·18 ± ·03 ·07 + ·03 | ·21 ± ·025 ·14 + ·03 |
| 27 | | low rental | ·18 + ·03 | 23 + .025 |
| 22 | 33 | | ·09 + ·03 | ·09 + ·03 |
| 2.7 | 23 | low wage of father | _ | |
| ,, | 23 | few rooms | $\cdot 10 \pm \cdot 03$ | ·12 ± ·03 |
| 97 | 22 | bad health of mother | 0.09 ± 0.03 | ·08 ± ·03 |
| 22 | 22 | ,, ,, father | $\cdot 06 \pm \cdot 03$ | ·08 ± ·03 |

Now these are not very high correlations, but every one of them is in the wrong direction; poor physique of parents and lower social value are associated with larger families. If further confirmation of these results be needed, Miss Elderton has worked out over 850 families from Salford which give for constant age of mother: Correlation

Low wage of father and large family $\cdot 07 \pm \cdot 02$ Low rental and large family Few rooms and large family $\cdot 03 \pm \cdot 02$

all again showing positive correlation of large family and poor conditions.

Thus Preston and Salford as far as the data reach confirm the Blackburn results. We have to admit that all inferior social conditions, drinking of parents, lower wages, lower rental, fewer rooms, irregularity of employment, and unskilled forms of labour are associated with greater fertility. Even when we come to health, we cannot say that the more healthy women have larger families, while we can say that the more unhealthy fathers have distinctly more offspring. It is admitted that the correlations shown are not large, but they are all in one sense, and they are taken more or less in one social class. The best members of that class have not the greater fertility, and where we should hope—for the sake of national welfare—that the more skilled, the more highly paid and the healthier had markedly the larger families i.e. substantial positive correlation between social value and size of family—we find negative correlations. Thus Miss Elderton's work shows, if only on small numbers, precisely the same state of affairs as was indicated by Dr Heron for London*—there is a differential birthrate, and it is one which associates greater fertility with physically and mentally inferior stock.

^{*} Drapers' Research Memoirs, I., On the Relation of Fertility in Man to Social Status, and on the changes in this relation that have taken place during the last Fifty Years. Dulau and Co., 1906.

SECTION III. H. J. LASKI: DATA FROM GLASGOW.

The second step is to deal with the fundamental problem—the correlation of lesser fertility with higher wages—on much larger material than Miss Elderton had available at Blackburn, Preston or Salford. The material in the Laboratory concerning this point was of two different types. In the first place we had at our disposal through the courtesy of Mr E. V. Birchall, formerly Hon. Sec., City of Birmingham Aid Society, data for the unemployed in Birmingham. This involved over 4000 cases, and there was much information about each individual. But the individuals themselves were largely the lower class of workers, many were failures and unemployable, and it may be doubted whether the range of labour here is itself as wide as when an indiscriminate selection is made by taking each birth in a district as it occurs. The latter course was followed in our second batch of material. This consisted of the reports on upwards of 8000 babies born in Glasgow, most kindly provided by Dr Chalmers, the Medical Officer of Health for that city. This material does not suffer from paucity like the Blackburn data, nor is it drawn from a special class like the Birmingham data, but the information given was far less complete than in either of the latter cases. We had only the age of the mother, the wages of the father, the rent, and size of previous family. There were other categories, but we found them not very completely or satisfactorily determined. This material was reduced by Mr H. J. Laski, who formed correlation tables for the four variates: size of family, age of mother, wages of father, and rent of house. Unfortunately the wages were given in less than half the total number of cases, and it might be thought that the cases where they were absent were those in which the wages were on the whole least certain and regular, and the fertility possibly the greatest. But we find on examination that the 8249 families for which age of mother is given have a mean size of 4.436 children and an s.D. of children = 2.785; while the 3965 families for which wages of father are given have a mean size of 4.444 children, with an s.p. of 2.658 children. Thus there is not much difference in mean fertility, and the cases where wages were omitted, since the s.D. is somewhat smaller, must have belonged to men with small families or large ones, i.e. probably to the very young or the old men, who having smaller wages may have been less inclined to state them. There is nothing, however, to indicate that those whose wages are given were at all a markedly differentiated section—as far as size of family is concerned—from the bulk of the population. Accordingly the correlations found for the group of under 4000 cases have been used in association with those for more than 8000 cases to deduce partial correlation coefficients.

The actual Tables are given below as I to VI. The following results were obtained:

TABLE E.

| Character | No. | Mean | Standard deviation |
|--------------------|---------------------|----------------------|--------------------|
| Number of children | 3965 | 4.444 | 2.658 |
| A C | 8249 | 4.436 | 2.785 |
| Age of mother | $\frac{3481}{8249}$ | 29.601 yrs 29.546 | 5·902 yrs 5·961 |
| Rent per month | 3481 | 12.898 shil. | 3·122 shil. |
| 99 99 | 8131 | 13.538 ,, | 3.489 ,, |
| Wages per week | 3552 | 23.477 ,, | 6.081 ,, |
| 2, 2, | 3965 | 23.547 ,, | 6.018 ,, |

It will be seen from these results that the values found for the long and short series are fairly in accord.

In a Glasgow working-class family the average weekly wage is 23s. 6d., a little over 3s. per week is paid in rent, the mother is on an average 29.5 years of age and she has 4.4 children. Thus on the average six people have to be supported on 20s. a week, were we to take no other source of income than father's wages.

If w = wages, s = size of family, a = mother's age and m = monthly rent, then the following correlation coefficients were determined:

```
 \begin{split} r_{ws} &= \cdot 0399 \pm \cdot 0106, & r_{wa} &= \cdot 1307 \pm \cdot 0111, \\ r_{ms} &= \cdot 1810 \pm \cdot 0072, & r_{ma} &= \cdot 2375 \pm \cdot 0107, \\ r_{mw} &= \cdot 3794 \pm \cdot 0070, & r_{sa} &= \cdot 7638 \pm \cdot 0030. \end{split}
```

On the basis of these numbers several interesting problems can be considered, but it is best to put down the whole series of partial correlations. We have*:

It is clear that practically all these, ${}_{a}r_{ms}$ excepted, are significant*. Now some interesting points come out at once from this series. If we look at the total correlation r_{ws} , we might argue that in general the larger the wage the greater the family. But we see at once that when correction is made for age of mother $({}_{a}r_{ws})$ the correlation becomes negative, or for mothers of a given age, those whose husbands have less wage have more children. It is also true that for a given monthly rent, or for parents living in a certain class of house, the higher the wage the fewer the children $({}_{w}r_{ws})$. Finally for mothers of a given age living in houses of a given value, the less the husband's wage the greater the number of children (i.e. ${}_{ma}r_{ws}$ is negative).

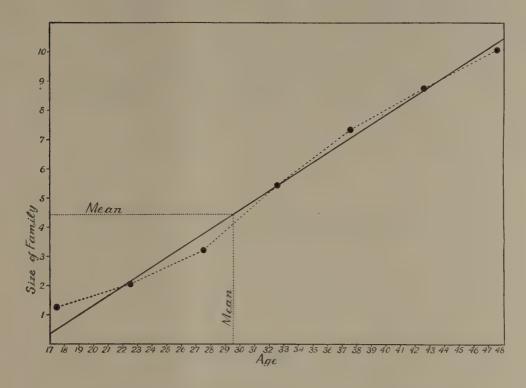
^{*} The probable errors of the partial correlations are calculated on the basis of the least number used to find a component r and accordingly are somewhat too large.

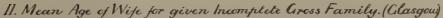
The correlations are not large, but they are definitely significant and confirm the Blackburn results, which were on much smaller numbers.

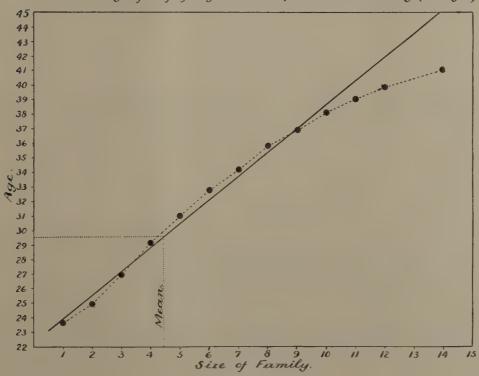
Next we might a priori have supposed that wages could produce considerable influence on rent and size of family; but we see that although rent is very sensibly correlated with wage $(r_{mw} = 3794)$, but little change is made when we fix size of family $(sr_{min}=3788)$. In other words increasing family is not the propelling factor when larger wages induce larger dwelling houses. Nor is it length of life which is the principal source of the relation between wage and rent. For a given age of mother, the amount of rent is even negatively correlated with the size of family $({}_{a}r_{ms} = -0.006)$, although the correlation is so small as to be insignificant. When wage is constant then we find a larger family means a higher rent ($_{w}r_{ms} = 1794$), but when we correct for age of mother $(a_{np}r_{ms})$ we find the correlation becomes of no importance (0359). The small influence of economic conditions is sensible in the last series of coefficients $(r_{\text{ex}} \text{ series})$, where, when we make wage or rent or both constant, it does not materially affect the relation between age of mother and size of family. The whole series of coefficients shows that if wages be a measure of social value, then social value in the working classes is not associated with increased reproductivity, but on the contrary, bad economic conditions are marked within a fairly narrow class notified births not attended by a medical man—by increased fertility. Numerically the regression coefficient of children on wages for constant age of mother and type of house = 031, or for every increase of 3s. 3d. in the weekly wage, there is $\frac{1}{10}$ of a child on the average less; or again, every three families, who are getting 33s. a week instead of the average 23s., contribute one child less to the community.

The point assumed throughout this discussion of the Glasgow data is the linearity of the regression. This is demonstrated by the regression lines in Diagrams I—IX. It will be seen that they are effectively straight lines, with the exception of Diagram II, which shows the familiar lessening of age with very large families. In Diagram I the results are really fairly linear because married women with no children would not come into the record, and a considerable number of these would be very young wives, which probably accounts for the deviation from the regression line of the youngest wives.

Diagram III giving the average wage of the husbands of wives with 1 to 12 children is of extraordinary interest. We see that having ten instead of one or two children does not involve an increase of the weekly wage by more than about 1s., while families of eleven and upwards seem to have a distinct fall in wages. Remembering that this becomes a falling wage when we allow for age of wife, we reach one of the gravest points of our modern civilisation: The addition of 9 to 10 children to a family does not on the average involve an increase of the wages by more than a shilling a week, which is absolutely inadequate for this increase in numbers. No regard is on the whole paid to size of family when the wages are fixed; further the 8 or 10 children may be all under the age of 14 and be absolutely unremunerative. Yet a shilling a week, due to the father being a more efficient labourer with greater age, is all that the economic system on the average provides for the increase of family.

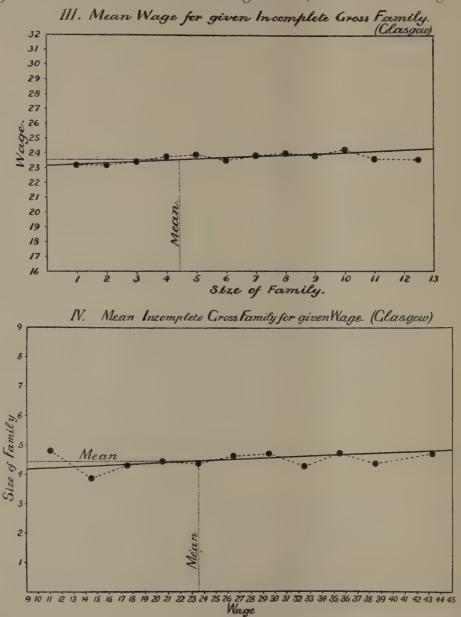






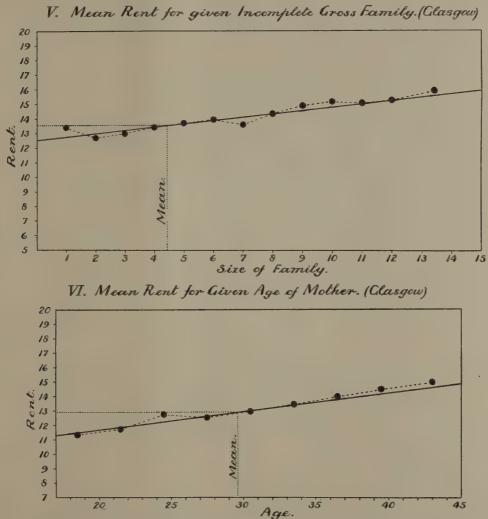
Is this not another valid demonstration that the child is no longer an economic asset, and will not be produced, when the parents are self-respecting and intelligent? Children will be produced just in those cases where the parents are regardless of them and willing to leave the state and charitable institutions to provide for them.

Diagram IV shows the reverse of Diagram III, the men with high wages-



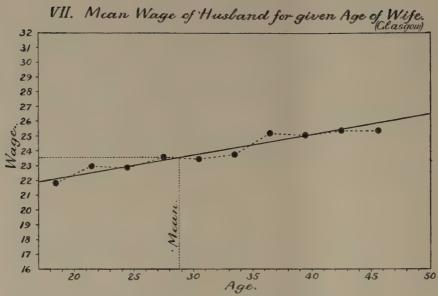
wages double or treble those of the poorer lower-waged class have not on the average a child more, and we have seen that if correction be made for their greater age, they have fewer children. We might anticipate that in a stable social state wage would be proportional to physical and mental worth—roughly it does bear some proportion. But there is not the least evidence that the number of offspring

in the working classes is proportional either to wage or social value. Glasgow seems to indicate a reproduction of the socially most disadvantageous kind. Diagram V enables us to state the mean rent which is paid in Glasgow for each size of family; but as we have already indicated this is largely a result of wage and family increasing with age, and if we give wage and age constant values there is little change of rent when family is larger. Diagram VIII (p. 12) shows how much on the average a man of each grade of wages in Glasgow pays in rent, and Diagram IX

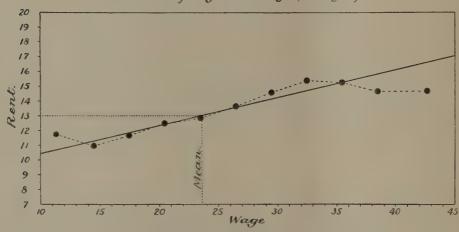


(p. 12) enables the social worker to determine—as far as it can be determined, for the correlation is not very high—the probable wage of the father from a knowledge of the rental of the home. It may possibly be of service in those cases where rental is known, but information as to wages is refused. Lastly, Diagrams VI (above) and VIII (p. 12) mark the betterment of economic position with age. There is a higher wage and higher rental as age increases. It is true that this age is the age of the wife, but we know that the age of wife has a close correlation (over '80 to '90) with age of husband. Undoubtedly from extreme youth up to end of the reproductive period

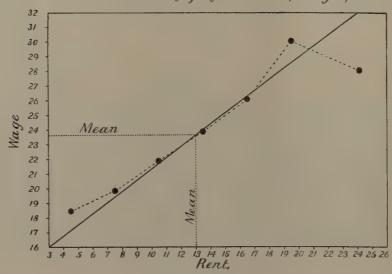
A COOPERATIVE STUDY



VIII. Mean Rent for given Wage (Clasgow)



IX Mean Wage for given Rent. (Glasgow)



of the wife, say to 46 years, the economic position of the family does improve, the mean wage increases by about 3s. 6d. and the rental paid by 3s. 7d. a month. But when the size of family increases from 1 to 10, the wage has only increased by 1s. and the rental by 1s. 10d. There is but one and one only explanation of this striking difference, i.e. that the artizan population who are prospering, i.e. who receive increasing wages and live in better houses as they grow older, are not so prolific as those whose wage and house conditions are stagnant—the child is not produced in proportion to the grade of prosperity, and—until we have a better scale—we must say that it is not produced in proportion to this rough measure of social value.

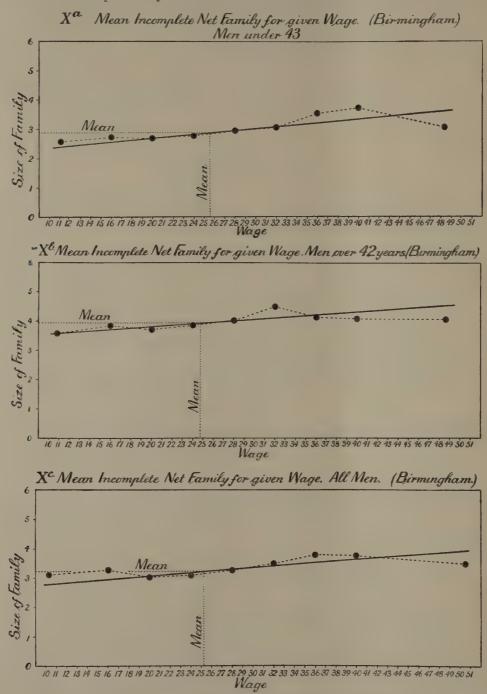
SECTION IV. EDITH M. M. DE G. LAMOTTE AND H. GERTRUDE JONES: DATA FROM BIRMINGHAM.

The whole of the Glasgow data of course concerns incomplete families, i.e. parents still in the reproductive stage. It covers a wide class of the community artizans who are successful as well as those who are failures. Our Birmingham data belongs to a narrower social class, the class of the unemployed, many of whom are life's failures. But it carries the wages on to the end of life, and we can gain some information as to completed families. The Birmingham data contain two series: the one of over 3500 cases was tabled and largely reduced by Miss Edith M. M. de G. Lamotte; the second of over 1600 cases was treated in like manner by Miss H. Gertrude Jones*. Much help in the final reductions was given by Miss Ethel M. Elderton, who also worked out the series dealing with mother's age. The whole of the material has not, however, been used for the present discussion, which is confined to the relation of size of family to social value as measured by wage, and in this special case by time out of work.

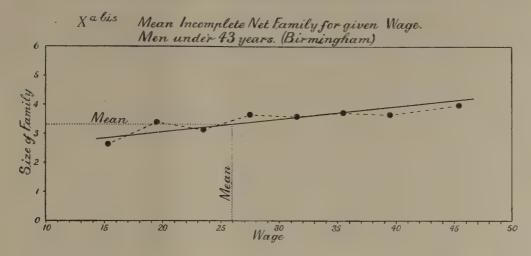
The size of family is in these data the number of living children. We notice at once—see Diagrams XI and XI bis (p. 16)—that for a given number of children the mean age of the father increases steadily up to a family of seven. Then it becomes somewhat irregular, but on the whole increases. An exception must be made of the case of zero family. Here the fathers are of mean age, nearly equal to that of the general population (39.80 years as against 39.50 in Miss Jones' series; 39.06 years as against 41'27 in Miss Lamotte's series). This seems to indicate that the bulk of the 'sterile' fathers were mates in truly sterile marriages in the sense that they were not simply very young husbands but men of all ages. There would be a certain number of men in both series, the whole of whose offspring were dead. A more instructive method of looking at the matter is to take the average number of children to fathers of each age. The graphs for this are given, Diagrams XII and XII bis (p. 17). We see in Miss Lamotte's series that the mean number of children increases from 1 up to 4 as we pass from age 20.5 to age 43. After 43 the number of children slowly falls. Thus up to 43 in the working classes of Birmingham we may take it that on the average births outnumber deaths, but after 43 reproduction

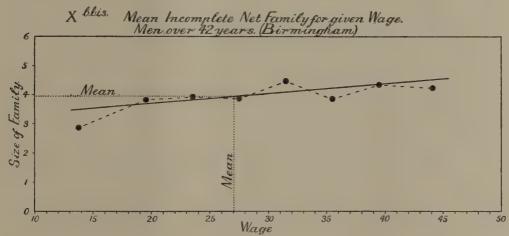
^{*} The diagrams marked bis refer to Miss Jones' data, those without bis to Miss Lamotte's series.

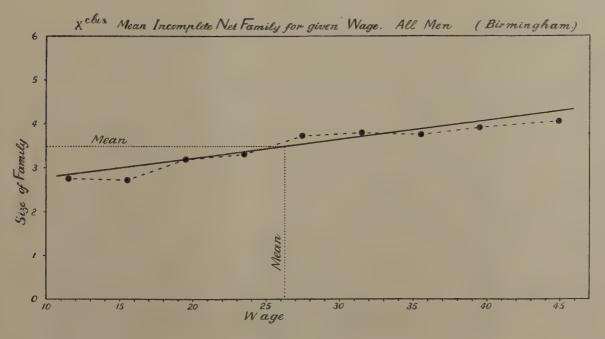
has generally ceased and the family slowly decreases owing to deaths; the regression is small, amounting to about $\frac{1}{4}$ child per ten years, whereas the rate of net increase is about 1.5 children per ten years below 43. Miss Jones' series show a rise from 20.5

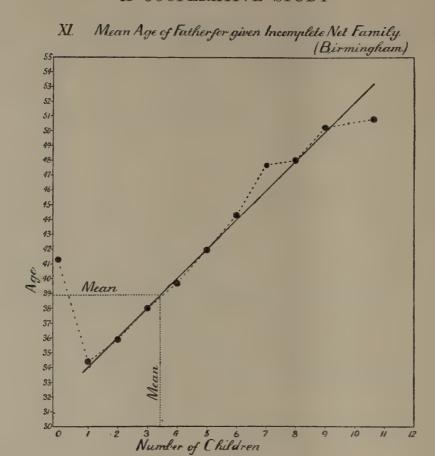


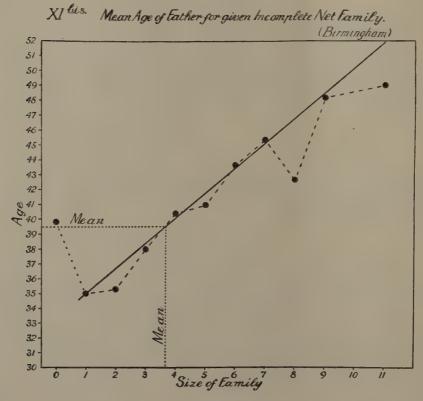
to 43 at a somewhat steeper rate, namely 1.8 children per ten years, so that 4.6 instead of 4.0 is the number of children reached at 43; the regression after 43 is more slender, being only $\frac{1}{20}$ of a child in ten years. It seems possible that in this



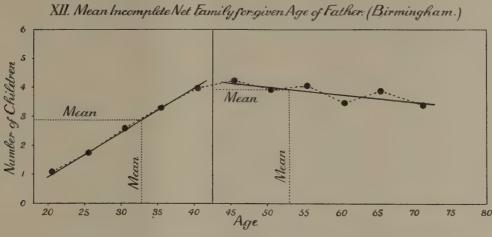


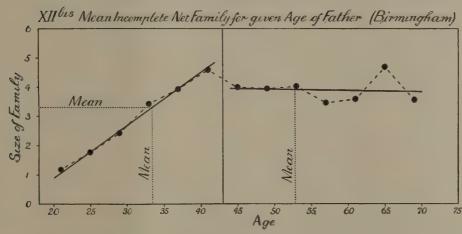


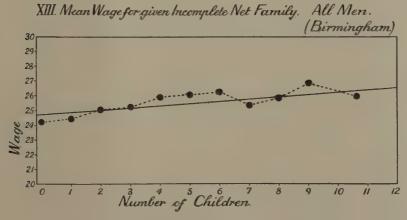




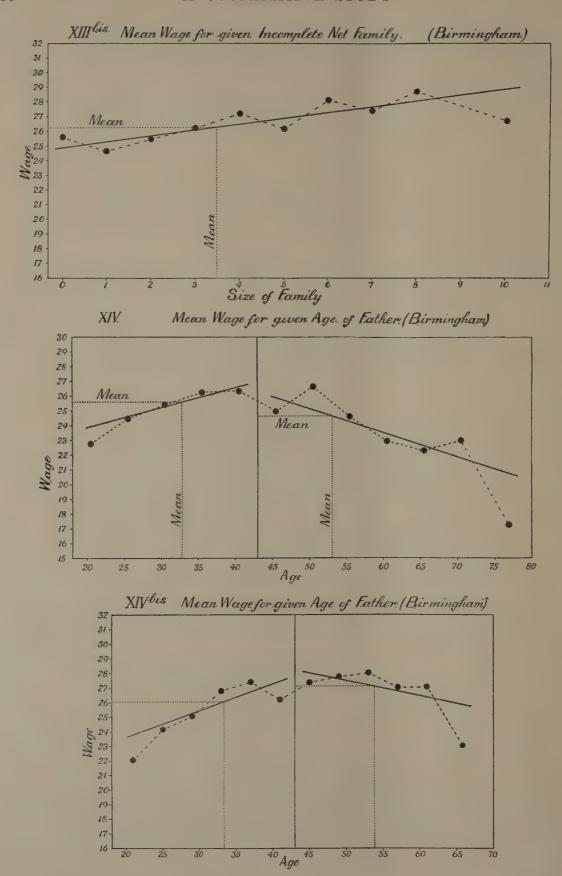
later series the men in greater proportion gave in error the total number born and not the surviving family, which was asked for. Anyhow, both series demonstrate that we can only consider the regression linear* if we break the material into two portions, one referring to men under 43, the other to men over 42, years of age.







* It might be possible to fit the regression curves of XIV and XIV bis with cubical parabolae, but the two regression straight lines suffice for our present purposes.



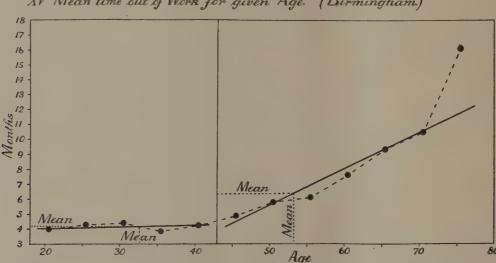
The next fundamental point is that of age and wage. Diagrams XIV and XIV bis show for the two series the alteration of wage with age. Up to the age of about 40 to 45 men's wages rise about 1.8 shillings per ten years; after this age they fall about 1 shilling per ten years, so that the man of 66 tends to have much the same wage as the man of 21. The above numbers are drawn from Miss Jones' series (XIV bis); Miss Lamotte's longer series (XIV) show a slower rise of 1.4 shillings per ten years, 20.5 to 43, and a quicker fall, 1.6 shillings per ten years after 43. Thus, roughly speaking, the age of 43 in the working classes marks an epoch both of wage and size of family. It is the period of largest family and highest wage. It is a striking, if not terrible, fact of our economic system, that after twenty years of labour the average workman will have increased his family by four children and his wage will only be three shillings higher. After his prime the wage begins to fall very nearly at the same rate that it has hitherto risen. Thus it would appear that a workman reaches his maximum economic value at about the age of 40 to 45. We have taken the economic and the biological prime to coincide, and separated for all purposes our fathers into two classes, those below and those above 43 years of age. We may now look at the wage results the other way round, and regard the probable number of children that a man with a given wage will have. This is represented for all men graphically in Diagrams X c. and X c. bis (pp. 14, 15). We see that in X c., in the range of wages from 10s. to 51s., the children increased from 2.8 to 3.9, or there was only an increase of 1.2 children against an increase of 40s. wages*. But even this is fallacious, because wages increase with age, as we have shown in Diagrams XIV and XIV bis (p. 18), and thus far no correction has been made either for age of father or age of mother. These points will be considered numerically later. We note at once that while the mean wage for a given number of children (XIV and XIV bis) gives regression curves which are widely divergent from linearity, the regression curves in X c. and X c. bis are sensibly linear. This remains true if we separate up into men under 43 and men over 42. The results are given in Diagrams X a. and X a. bis for men under 43 and in X b. and X b. bis for men over 42: see pp. 14, 15. We are thus in a position to deal by linear regression with our results, provided we break our material into two sections corresponding to men under and men over their economic prime, which, as we have seen, corresponds closely with their reproductive prime. It should be borne in mind that it is the wage with age and the size of family with age distributions that show skewregression, and therefore enforce this differentiation of our material. For, not only is the mean incomplete net family linear to wage, but the mean wage is linear to incomplete net family, as shown on Diagrams XIII and XIII bis: see pp. 17, 18. In the first of these we see that as the family increases from 0 to 10 there is less than 2s. increase in the mean wage, and in the second, as the family increases from 0 to 8—the data are too slender beyond 8—there is an increase of about 3s. in the mean wage, i.e. 2d. to 4d. say per child per week, and, as we have seen, this is not

^{*} In the shorter series X c. bis (p. 15) an increase of wages from 11s. 6d. to 45s. marks an increase of children from 2.8 to 4.3, or an increase of 33s. 6d. only means an increase of 1.5 children.

because there are more children, but because the average father is nearer his economic prime when his family is larger.

We shall return later to the numerical results illustrated in the diagrams just discussed. We must remind the reader that we are dealing with two periods of the Birmingham unemployed schedules, the first containing a series of 3500 cases, we speak of Miss Lamotte's series, and the second, of about 1600 cases, as Miss Jones' series. Further, each of these series is again divided into two groups: Fathers under 43 and fathers of 43 and over.

The Birmingham data in the diagrams considered have been analysed from the standpoint of the relation of wages in last employment to the size of family, and, as we have seen from other material, the conclusion is precisely the same—there is no adequate rise of wage with increase of number of children. But we have also examined these data to determine the relation of age and size of family to time out of employment*.



XV Mean Time out of Work for given Age. (Birmingham.)

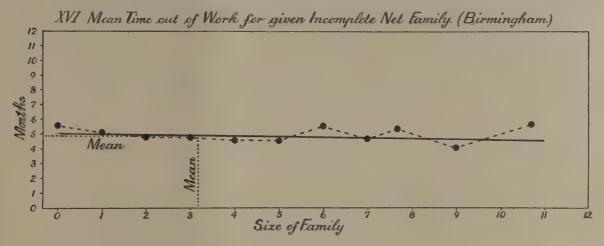
The first important point illustrated in Diagram XV is that the average time out of work is notably related to age. As long as a man is under 43 his average time out of work depends very little on his age, and is about four months. After age 43 the time out of work rapidly increases with age, and it is quite clear that the old men out of work have little chance of re-employment. Thus we have found it absolutely needful to divide men into men 'over 42' and men 'under 43,'† as in the previous investigation. Next, if we look at Diagram XXIV (see p. 25) we observe that for a given time out of work there is only a very slight increase of age until we reach seven months, and then the age rises rapidly with time out of work. Indeed, many of these cases were chronic unemployables, and gave round periods '18 months,' '2 years,' '3 years' for their time out of work, so that our grouping must be done over large

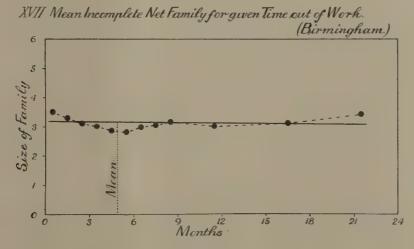
^{*} This is not the time to the obtaining of new employment, but the actual time out of employment till the date of first applying to the Central Aid Society. It is therefore only a rough measure of time out of employment, a minimum limit.

[†] See footnote, p. 23.

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ranges. We may now look at these data from the question of size of family—incomplete net family as before. Diagram XVII shows us that when a man has been less than seven months out of work, then the shorter time out of work the larger his family; in other words, it would seem that the existence of more children urged him back to work. On the other hand, when he has been seven months and over out of work, then the longer time out of work the larger his family. This suggests that the chronic unemployables, the men who have been months and years even out of work, are the men who have large families; they are the men without foresight in



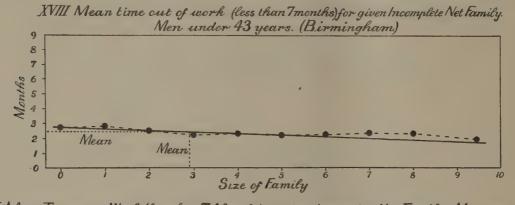


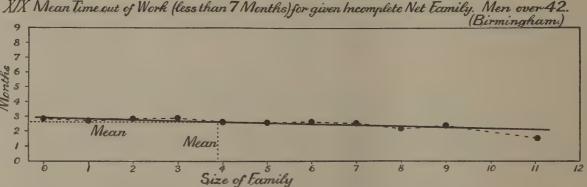
any matter. The same point is illustrated in Diagram XVI. As the family increases from 0 to 5, the average time out of work slightly decreases, *i.e.* by about a month, but with the larger families there is, if anything, a very slight rise in the time out of work. It seems possible, therefore, to draw the conclusion that when a man has five or less children, his time out of work is slightly shorter the larger his family*.

* In Diagrams XVI and XVII the regression lines for size of family under 6 and over 5, and for under 7 and over 6 months out of employment have not been drawn, only the lines which give the regressions for all sizes of family and for all periods out of employment are inserted. These are

This means, of course, that he comes sooner to the Central Aid Society, or that he is keener on finding work. On the other hand, when he has more children, they play little if any part in the question of how long he will be out of work.

If we turn to the relation of wage in last place to time out of employment, we see (Diagram XXIII, p. 25) that the relations are very complex. The men less than five months out of employment have a higher wage the longer they have been out of employment. Beyond five months there is an apparent fall of wage with times out of employment up to 14 months, and beyond 14 months the data are too erratic to give any clue to real relationships. It is difficult to give any satisfactory interpretation to the results. It may mean that the man who has been accustomed to higher wage does not apply to the Society until he has been longer out of work,

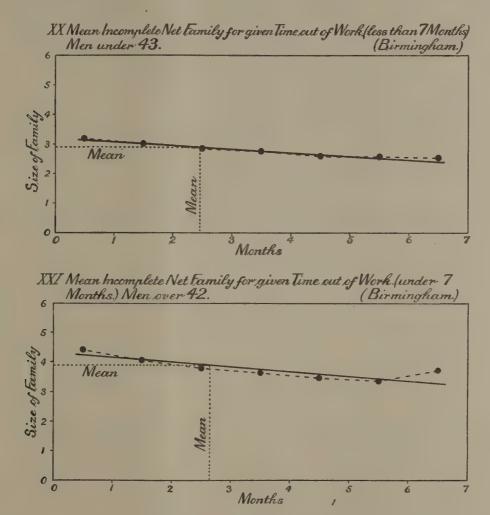




or it may signify that the lower waged men more easily find berths. It is further conceivable that after five months we are again largely dealing with the chronic unemployed, whose wages in last employment mean very little indeed. A more uniform result is obtained if we plot (Diagram XXII, p. 25) time out of work to wages in last employment. We have now a continuously increasing time out of work with the higher wage. This again may signify either (i) that the higher waged men wait longer before they apply to the Central Aid Society or (ii) that the higher waged intended to show how little influence, taken as a whole, the number of dependents has on the housefather's chance of employment, i.e. naturally his chance of employment depends on his fitness mentally or physically, but the size of his family is very slightly related to his unemployment and hence cannot be very highly correlated with these characters.

men, if unemployed, find it more difficult to obtain re-employment. Still more probably, it is due to a combination of these two causes.

Diagrams XVIII, XIX, XX and XXI show us that whether we take regression of time out of employment on size of family or regression of size of family on time out of



employment, and whether we take men 'under 43' or 'over 42,'* we may safely apply the methods of partial correlation to the material thus arranged, for it shows true linear regression. This enables us to approach our problems algebraically. The following results were obtained:

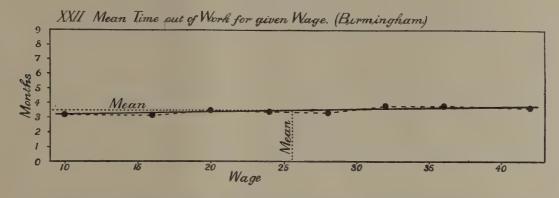
* Throughout the diagrams the heading 'men under 43' signifies men who have not completed their forty-third year of life, i.e. it covers those who record themselves as 42 years of age and lie between 42 and 43, and all those younger. On the other hand 'men over 42' covers all those who have completed their forty-second year of life, and can in no case longer record themselves as 42, i.e. all those who have reached or passed the forty-second anniversary of their birthday.

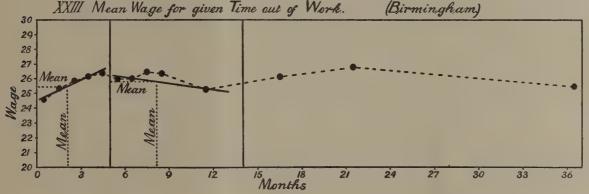
Table F. Birmingham Data. General Numerical Results.

| | | Mis | Miss Lamotte's Series | | | Miss Jo | Miss Jones' Series |
|--|--|---|---|---|--|---|--|
| | *************************************** | Fathers under 43 | der 43 | Fathers | Fathers over 42 | Fathers under 43 | Fathers over 42 |
| Statistical constant tabled | All ages, all wages, all times out of work | Whatever time out of work | Out of work less than 7 months | Whatever time out of work | Out of work less than 7 months | whatever time out of work | whatever time cut of work |
| Age of father (f) | 38.93 4.88 3.17 | 32.81 4.17 2.84 | 32.88 2.46 2.89 | 53.18 6.36 3.89 | 52.48 2.64 3.88 | 33.28 3.49 3.26 | 51.92 5.94 3.78 |
| brabnat8 anoitaiveb | 11.45 6.59 2.17 | 5.50 5.30 1.82 | 5.50 1.73 1.83 | 7.49 8.53 2.64 | 7-15 1-79 2-66 | 5.57 4.99 2.00 | 6.80 8.21 2.30 |
| anoitalerioo | - 015 ± 011 (ix) + 183 ± 011 (x) + 288 ± 010 (xi) - 072 ± 011 | $\begin{array}{l}086 \pm .014 \; (\text{xvi bis}) \\013 \pm .014 \; (\text{xvii bis}) \\ +.451 \pm .010 \; (\text{xii}) \\103 \pm .015 \end{array}$ | $\begin{array}{c}115 \pm .015 (\text{xvi}) \\079 \pm .015 (\text{xvii}) \\ +.453 \pm .012 (\text{xviii}) \\090 \pm .015 \end{array} \begin{array}{c}021 \pm .020 (\text{xix}) \\ +.214 \pm .010 (\text{xx}) \\094 \pm .020 (\text{xxi}) \\001 \pm .020 \end{array}$ | $\begin{array}{l}021 \pm .020 (\text{xix}) \\ +.214 \pm .010 (\text{xx}) \\094 \pm .020 (\text{xxi}) \\001 \pm .020 \end{array}$ | 110± 023(xxv) 016± 023(xxvi) 118± 023(xxvii) 112± 023 | $\begin{array}{c}105 \pm .022 \ (\text{xxviii}) \\040 \pm .022 \ (\text{xxix}) \\ +.503 \pm .015 \ (\text{xxx}) \\097 \pm .022 \end{array}$ | $\begin{array}{c}144 \pm .035 (\text{xxxiii}) \\ +.225 \pm .034 (\text{xxxiv}) \\014 \pm .031 (\text{xxxv}) \\145 \pm .035 \end{array}$ |
| Age of father (f) Wage of father (v)† No. of living children (s) | 39-06* 255-27‡ | 23.28 25.50 28.88 88.88 | | 53.08 24.64 · 3.94 | | 3.00 3.00 3.00 3.00 4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4. | 52.79 * 3.95 ‡ |
| anoitsivab | 11.17* 7.88‡ 2.19‡ | 5.48 6.52 1.88 | | 7.50 7.12 2.63 | . 1 1 | 5.54 6.254 2.00 +++ | 7.17 6.92 2.38 |
| anoitaletroo | % | $\begin{array}{c} + \cdot 117 + \cdot 013 \text{ (xiii)} \\ + \cdot 114 \pm \cdot 013 \text{ (xiv)} \\ + \cdot 460 \pm \cdot 011 \text{ (xv)} \\ + \cdot 074 \pm \cdot 013 \end{array}$ | 1111 | + ·069 ± ·020 (xxii) - ·172 ± ·019 (xxiii) - ·075 ± ·020 (xxiv) + ·057 ± ·020 | | $\begin{array}{c} + \cdot 134 \pm \cdot 022 \; (xxxi) \\ + \cdot 162 \pm \cdot 022 \; (xxxii) \\ + \cdot 503 \pm \cdot 015 \; (xxx) \\ + \cdot 062 \pm \cdot 022 \end{array}$ | + ·099 ± ·036 (xxxvi) - ·107 ± ·036 (xxxvii) - ·014 ± ·031 (xxxv) + ·098 ± ·036 |
| | | 4 | 2 | Q | Æ | 1 | ජ |

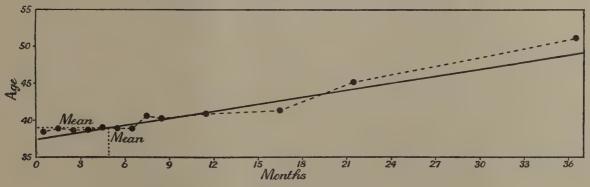
* From age and no. of children table. The three tables in the second series were made for each pair for all available data for that pair. Hence the total entries differ slightly in each table. \$ The regression lines are too The small Roman figures refer throughout to the corresponding correlation tables. skew to allow any meaning to the simple correlation coefficients.

Miss Jones' data for 1200 to 1300 cases were in the first place used as controls, and worked out in full for the age but not for the time out of employment groups. If compared for the corresponding columns, *i.e.* F with B and G with D, the agreement is seen to be reasonably close, remembering that somewhat different economic conditions existed in the two periods*.





XXIV Mean Age for given Time out of Work. (Birmingham)



* If we compare the data for all ages, all wages and all times out of work, we have in the two groups

| ene Seerika | Miss Lamotte | Miss Jones | | Miss Lamotte | Miss Jones |
|--------------------------|--------------|------------|-----------------------------|--------------|------------|
| Mean age of father | 38.93 | 38.40 | Mean age of father | 39.06 | 38.95 |
| Mean time out of work | 4.88 | 4.12 | Mean wage | 25.27 | 26.26 |
| Mean no. of living child | ren 3·17 | 3.46 | Mean no. of living children | en 3·22 | 3.48 |

The accordance seems quite as close as we ought to expect.

Interpreting these results by the multiple regression formula:

$$w - \overline{w} = {}_{f}r_{ws} \frac{\sigma_{w} \sqrt{1 - r_{wf}^{2}}}{\sigma_{s} \sqrt{1 - r_{fs}^{2}}} (s - \overline{s}) + {}_{s}r_{wf} \frac{\sigma_{w} \sqrt{1 - r_{ws}^{2}}}{\sigma_{f} \sqrt{1 - r_{fs}^{2}}} (f - \overline{f}),$$

we see that for constant age of father the increase of one child connotes an increase of

$$_{f}r_{ws}rac{\sigma_{w}\sqrt{1-r^{2}}_{wf}}{\sigma_{s}\sqrt{1-r^{2}}_{fs}}$$
 in the wage,

i.e., for fathers under 43, connotes an increase of '287 shillings or 3'44 pence in the weekly wage. This is of course an absolutely inadequate sum with which to provide for an additional child.

Inverting the problem, we find that for constant age of fathers under 43 each additional shilling signifies '019 child additional, or an excess of 50s. above the average wage would only connote one additional child!

Above 42 years we find the corresponding numbers are for constant age of father:

One child connotes on the average an increase of '152 shillings or 1.8 pence per week in the wage. One shilling increase in the wage connotes on the average only '021 more children, or an increase of 50s. in the wage would only connote the existence of one more child.

The control series of Miss Jones gives

For men under 43 for constant age: There is an increase on the average of '152 shillings or 1'8 pence for each extra child per week.

There is an increase on the average of '0185 children for every increase of one shilling in the wage; or, when there is an increase of 50s. per week in the wage, there is barely an increase of one child.

For men over 42 for constant age: There is an increase on the average of '283 shillings or 3.4 pence for each extra child per week.

There is an increase on the average of '034 children for every increase of one shilling in the wage; or, when there is an increase of 50s. per week in the wage, there is barely an increase of 1.5 children in the family.

Thus these Birmingham data show that wage as a measure of social value has no practical relation to size of family; an increase of even 50s. in the wage value of men in their reproductive years will connote barely one child more in their family. On the other hand, wage is in no way proportioned to the needs of parenthood, an increase of one child in the family being only on the average accompanied by an increase of 2d. or 3d. in the wage.

It is true that in better material than the Birmingham data, that is in data from Glasgow, Bradford and Lancashire, we have been able to show that the relation of size of family to size of wages is negative. Among the selected class of those who have fallen out of employment this is not the case, but this does not prove that if we had knowledge as to the employed of Birmingham, i.e. as to the better class artizans, this correlation would not, as elsewhere, be negative; probably it is. But

the data as they stand show adequately how terribly injurious to true race-progress an economic system must be which gives the child no economic value, or only a value so out of all proportion to its cost of keep, that on the average every child born must lessen the family welfare and comfort.

Table G. Birmingham Data, Ages of Parents, Wages, No. of Children alive *.

| | Fathe | rs under 43 | Fathers | over 42 |
|---|-----------------------------|---|--|---|
| | Miss Lamotte's series | Miss Elderton's series | Miss Lamotte's series | Miss Elderton's series |
| Means | | | | |
| $f \\ m \\ w \\ s$ | 32·82 — 25·56 2·88 | 32.74 31.21 25.32 3.02 | 53·08 | $52 \cdot 12$ $48 \cdot 66$ $24 \cdot 71$ $4 \cdot 54$ |
| Standard Deviations | | | | |
| $f \\ m \\ w \\ s$ | 5·48 — 6·52 1·88 | 5.40 5.76 6.43 1.76 | 7.50 7.12 2.63 | 6.91 8.26 6.89 2.36 |
| Total Correlations | | | | |
| Tfm Tfw Tmw Tfs Tms Tws | | + :843 ± :004 (xxxviii) [+ :114 ± :013] † + :138 ± :014 (xxxix) [+ :460 ± :011] † + :506 ± :011 (xl) + :116 ± :014 (xli) | $ \begin{array}{c}172 \pm .019 \text{ (xxiii)} \\075 \pm .020 \text{ (xxiv)} \\069 \pm .020 \text{ (xxii)} \end{array} $ | + '730 ± '011 (xlii) - '118 ± '024 (xliii) - '073 ± '024 (xliv) - '026 ± '024 (xlv) + '015 ± '024 (xlvi) + '037 ± '024 (xlvii) |
| $Partial \\ Correlations \\ {}^{m}r_{ws} \\ {}^{f}r_{ws}$ | | $+ .054 \pm .014$ [+ .074 ± .013]† + .055 ± .014 | | + ·038 ± ·024 + ·034 ± ·024 + ·034 + ·024 |

^{*} f = father's age, m = mother's age, w = wage, s = number of living children.

We considered that the Birmingham results might differ to some extent from those for other places because we had not corrected for mother's age, although we knew the high correlation of the latter with the father's age, for which we had corrected. The mother's age was not provided in the material originally sent to us, but on further inquiry we received books which enabled us to deduce it for some 3000 cases. The twelve tables for these data covering the four variables, age of mother, age of father, wage of father, number of living children, and for the two groups, fathers under 43 and fathers over 42, were all again worked out by the energy of Miss E. M. Elderton. The results are given in Table G with the earlier ones for the not completely identical series, in which we had age of father

[†] Not reworked for this series, but taken to have the values found in earlier series.

only. It will be seen that the final correlations, those of $_{mf}r_{ws}$, are lowered to still further insignificance without, however, being altered in sign.

A point must here be emphasised which has troubled us throughout the treatment of the Birmingham material, namely the meaning of zero living children.

It appears as if the recorders of the earlier part of the data had not used zero children with a single significance. It may denote that no children had been born, or that all had died, or that the man seeking work had no children dependent upon him. In Miss Lamotte's data we have 5.5 per cent. of the men under 43 give 'zero' children as their case; but of the men over 42, 9.3 per cent. give 'zero' children. There should of course be an increase in the number of men with no children in the older groups, because children would no longer be born, and those born would be dying. But this does not explain the whole situation, for when we come to the data for which age of wife is given, the number of men under 43 who give no children is now only 1.7 per cent., and not a single man over 42, the age of whose wife is given, is recorded as having 'zero' children. The source of this paradox appears to be the indirect method used of adding age at marriage, the age of eldest child together with one year, to obtain age of wife*. Thus without children the wife's age could rarely be determined. An attempt was therefore made to measure the effect on the correlations in Miss Lamotte's series of leaving out the men with 'zero' children altogether. We obtained the following results for the age of father and number of living children:

TABLE H.

| | Men ur | nder 43 | Men o | v er 42 |
|--|--|---|--|---|
| | Zero F | amilies | Zero F | amilies |
| | included | excluded | included | excluded |
| Mean age of father Mean no. of children S. D. of father's age S. D. of no. of children r_{fs} | 32·80 2·88 5·49 1·83 + ·460 + ·011 | 32.05 3.05 5.79 1.74 $+.462 + .011$ | 52·96 3·94 7·48 2·62 -·075 +·020 | 51.81 4.34 7.41 2.41 $+.001 + .021$ |

Thus the leaving out of the 'zero family' men brings Miss Lamotte's series into closer agreement with Miss Elderton's, but makes no sensible change in the result previously reached that over 42 there is no sensible relationship between the father's age and the size of his family, and that under 43 the correlation of father's age and size of family is somewhat less than 0.5. The meaning of the zero number of children, although obscure, does not modify the conclusions to be drawn from our data; for, whether we leave these cases in or put them out, the correlations are not seriously modified.

^{*} In the data provided only the age at marriage deduced in this way from the true age of the wife was given, we had to reverse the process to get back to the true age of the wife.

If we turn to the results for wage on p. 24, we see that men under 43 have an increase of wage with age, but over 42 the wage decreases with age; under 43 the size of net family increases with age, over 42 it decreases with age. Wage and size of family are positively correlated, but the correlations are very small, and, when corrected for ages of parents (Table G, p. 27), leave a wholly inadequate increase of wage for each child born. Under 43 the time out of employment decreases with age; over 42 the time out of employment increases with age; in other words the very young and the very old are the longest out of employment. For constant age, whether under or over 43, the larger the family the shorter the time out of employment (or the sooner the man seeks help from the Central Aid Society), but the relationship is very slender, and it is far more likely to be the result of pressure of food than due to the possibility that the father of the larger family is more employable.

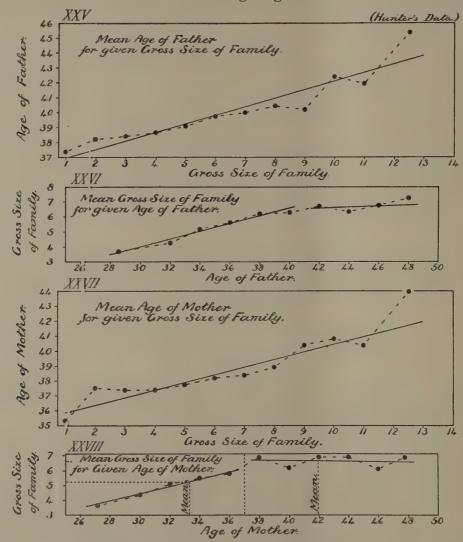
The Birmingham data, notwithstanding that they refer to a class of labour by no means satisfactory, yet illustrate the main thesis of our paper—the wage-earning power, and the capacity to find employment of the artizan have no significant relation whatever to the size of his family. The child does not come where there is capacity to provide for it, and the existence of the child when it comes is not provided for economically. Nor is the matter easier for the wife; if she marries young, in the course of 20 years she may expect a rise of 3s. per week in her husband's wages, i.e. an increase of less than 2d. a week per year. But when her husband is 43 his wages will begin to fall about 0.7d. a week per year.

It may be said that all our data so far refer to the poorer artizan. We will now illustrate the same point from material where the wages have a greater variation, rising to £3 per week, and where there is no out of employment selection.

SECTION V. AMY BARRINGTON: DATA FROM THE ROYAL ALBERT ASYLUM, LANCASTER.

Owing to the kindness of Dr D. W. Hunter, at that time one of the medical officers of the Royal Albert Asylum, Lancaster, the Laboratory received data bearing on the home and family conditions of nearly 3000 imbeciles. These data are being worked up for other purposes, but it occurred to us in the course of the work that the facts contained therein bearing on the relationship of size of family to social value as measured by income would form a valuable contribution to the present study, and the reduction of the material of the present section is due to Miss Amy\Barrington, who had the imbecile records in hand. There seems no reason to suppose that the appearance of at least one mentally defective or imbecile child in the family would cause a wide differentiation in the relationships we are investigating, or that our selection of such families would be a fact likely to modify substantially the general relations between size of family and social value. As in this study we are confining our attention to the artizan classes, and the data of the Royal Albert Asylum covered a fairly wide range of social status and of incomes, we have selected out of the available material only those with weekly income of £3 or under. Further here, as in all our other material, there is after a certain age a fall in the income of the

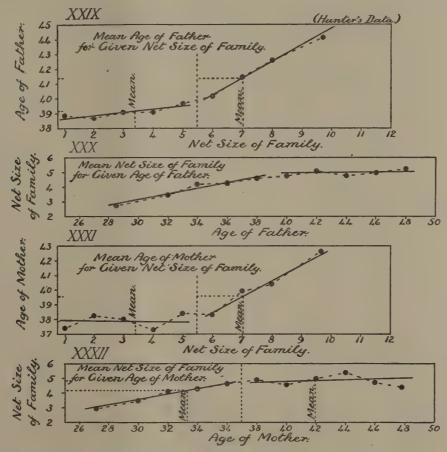
man, and, as we are desirous of measuring his income during the reproductive period, we have limited the father's age to 48 and under*. Lastly, we have taken mothers only up to the age 50 as marking in general the limit to the reproductive period. When these three limits were applied, however, our material was reduced to 724 families. It seemed impossible to extend the material beyond the limits suggested, as if we did the regression lines were far too curved to be represented even approximately by straight lines, and so there was no justification for using the ordinary partial correlation coefficient when we were investigating the relation of size of family and



income for constant ages of the parents. As it is, the regression in the case of size of family (whether net or gross) on ages of mother and father is not closely linear. An examination of Diagrams XXVI, XXVIII and XXX, XXXII suffices to show that, while the size of family increases with both man and woman up to the ages of 40 and 38 respectively, there is very little, if any, increase after those ages. In other words,

^{*} The fall in income begins about 48 in this material; the economic prime is thus reached rather later when higher class forms of labour are included.

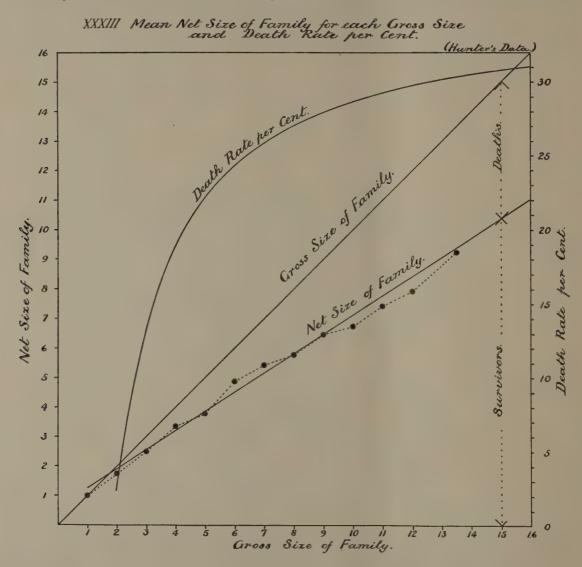
although men are fathers after 40 and women mothers after 38, these are largely cases of those who have married late, and, generally speaking, the size of family for parents over these ages remains constant. This practical cessation of reproductivity by the ages 38—40 in the working classes seems a remarkable factor of the present situation, and deserves further investigation. We were not able to deal with it directly on our other material, which was collected by the fact of a birth occurring, and we were thus not able to obtain an average size of family for parents over these ages who were or were not any longer having children. Of course our numbers are far too slender to lay any stress on what occurs in the case of very large families; to



obtain any average result at all we must club together families of 12, 13 and 14, and even then the results are somewhat erratic. But we think it safe to say that, even with what is now-a-days a very large family, one of 11, we shall not find the average age of the mother to be over 41 or of the father over 42.5 years, while families of six are completed by the time the mother is 38 and the father 40.

In Diagrams XXV—XXXVIII the relationships of the material are depicted. We see in Diagrams XXV and XXVII that for a given gross family the ages of father and mother increase fairly uniformly. In XXVI and XXVIII we have the constancy of gross family—the practical cessation of reproduction after the age of 40 in the man and 38 in the woman. This is true again, as we have already noted, for

the net family: see Diagrams XXX and XXXII. But Diagrams XXIX and XXXII bring some new features to light, which do not appear so markedly for the gross families in Diagrams XXV and XXVII. The population seems divided into two distinct groups—those with net families of five or under, and those with net families of six or over. We should expect the age of father and mother to increase almost uniformly with the size of their family, but this is far from the fact. When the

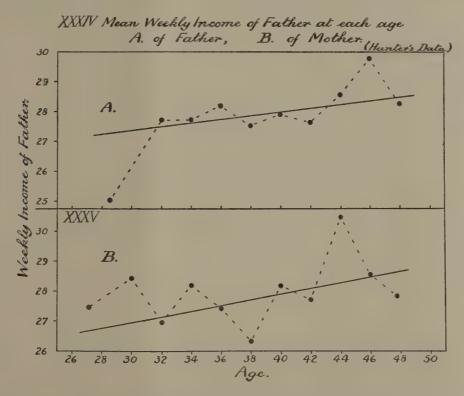


family is over five, then the age of father and mother increases almost 18 months per child, a natural and a priori probable rate of increase. This holds only, however, for those with large families; for those with families under six the age of mother is practically independent of size of family and the age of the father is only slightly related; an increase from one to five children only means an increase of one year in the father's mean age. There is, so to speak, no natural increase of age with size of family. There seems only one explanation of this curious state of affairs, namely the

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limitation of the family to five or fewer children, and this view is confirmed by the fact that this limitation appears to be less marked in the gross family than in the net family. The tendency appears to be the checking of the family at 2, 3, 4 or 5 surviving children, according to preference, and thus the size of family has little relation to age. Of course linear regression applied to Diagrams like XXIX to XXXII only expresses roughly the facts of change of size of family with age. It will be clear to the reader that to emphasise the finer shades of the fertility changes going on in our industrial population we ought not only to take a limit to wages and ages of parents, but also to size of family. For this the material is insufficient.

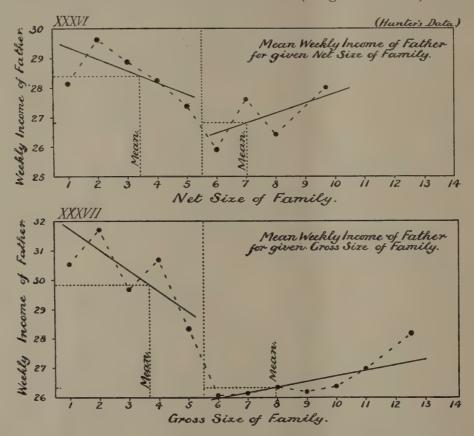
Diagram XXXIII gives the relation between net and gross size of family, *i.e.* the average net family for each size of gross family. Too much stress must not be laid



upon it, for of course it cannot include any of the cases for which the net family was zero, for the family could not then have a child in the Asylum; thus, when the gross family is one, the net family must be one also. The diagram shows the survivors and deaths for each size of gross family, and gives the death-rate for each size of family. We see that for large families roughly 31 per cent. die. But the fact that for families of three only 13 per cent. die and for families of twelve 30 per cent. die must not be too much emphasised. In the first place, a gross family of three means a net family of only 2.5 children, and a gross family of 12 means a net family of 8, more than three times the former number—so that the unequal death-rates do not equalise matters. In the second place, the death-rates are not so unequal as appears from Diagram XXXIII, as the smaller families contain children of a lower average age than

the larger, and thus the children of the larger families have been longer exposed to risk. Indeed, we have put Diagram XXXIII into our memoir largely to warn readers that many of the usual statements as to the high mortality of large families are based upon disregard of the years exposed to risk, and are scarcely valid arguments*. On the other hand, infantile mortality does appear to be somewhat greater in the very large families. We hope shortly to publish a fuller investigation of this important problem.

We now turn to the relation of wages to age of parents. Diagram XXXIV shows us that from ages 32 to 42 of the father there is sensibly no increase in his weekly income. It is about 27s. 9d. For mothers (Diagram XXXV) from the ages



of 27 to 42 there is again no sensible increase in the wage of their husbands. After 42 to 48 there does appear some small betterment, but after age 48 in the parts of this diagram, which we have excluded by our age limit, the wage falls rapidly.

Taken as a whole, the working man after 32 and up to 48 may on the average expect a total rise of about 1s.—less than a penny a week per year of his age. If we judge by age of mother the increased income of the husband is less than twopence per week per year during her reproductive years! But during these years the gross

^{*} The subject has been frequently treated by considering the death-rate in families where the marriage has lasted 15 or perhaps 20 years, but this method clearly does not equalise the years of exposure to risk when the families are of different sizes.

family increases by about three and the net family by two: see Diagrams XXVIII and XXXII. If, then, the average results for size of family were those for average wage and age, we might expect a rise in weekly wage of about sixpence per child born. This is certainly not enough to keep a child on, and we may be fairly certain that in the working classes children are not economic assets, and we need little wonder that they are not more keenly desired. But is there really this sixpence a week per child increase in wage when we consider the problem directly? Unfortunately the Diagrams XXXVI and XXXVII, which show direct relationship between size of family and wage, are not entirely simple in character, but as in the relation of size of family to age of parents there is a conspicuous difference between families with over five children and those with under six children.

For Gross Families:

Under six children.

Mean Family = 3.67, Mean Wage = 29s. 10d.

Over five children.

Mean Family = 7.95, Mean Wage = 26s. 5d.

That is to say, while the large families have 4.3 children more than the small, they have on the average 3s. 5d. less wages.

For Net Families:

Under six children.

Mean Family = 3.41, Mean Wage = 28s.5d.

Over five children.

Mean Family = 7.01, Mean Wage = 26s. 10d.

Or an increase on the average of 3.6 children is accompanied by a *fall* of 1s. 6d. in the average wage. There is some sign of a rise of wage with the very large families, but it is quite possible that these large families belong to the *older* marriages, and mark a period before restriction became dominant among the workmen with higher wages.

In the case of gross families the maximum wage is reached with families of two, and is then 31s. 8d.; the last reliable datum is for families of 11, and the wage is then 26s. 10d., or there is a drop of nearly five shillings for an increase of nine children born. In the case of net families the maximum income is 29s. 8d. for families of two, and the last really reliable datum 27s. 8d. for families of nine, or a decrease of two shillings per week for an increase of seven children.

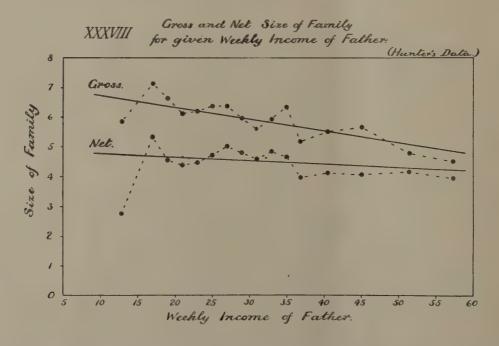
Lastly, looking at Diagram XXXVIII, we see that if income measure social worth there is a steady decrease both in size of gross and of net families as a man's income increases. There is a reduction in the size of gross families of about two children and in net families of about one as the wage of the father rises from 18s. to 58s. per week. There cannot be a doubt that in the families of our present investigation the better off have fewer offspring.

The problem has also been dealt with numerically: the following are the constants found, the limits being still taken as 48 for age of father, 50 for age of mother, and 60s. for weekly wage:

| | | Mean | Standard Deviation |
|-------------------------|-------|-------|--------------------|
| Gross size of family | | 6.02 | 2.646 |
| Net size of family | • • • | 4.56 | 2.097 |
| Age of father | ••• | 39.83 | 5.003 |
| Age of mother | | 38.42 | 5.204 |
| Weekly income of father | | 27.89 | 9.648 |

Correlations.

| Age of | father and | gross | size of | family | + ·3035 ± ·023 |
|----------|---------------|----------------|-----------|----------|-----------------------------|
| 27 | ,, | net | 99 | 33 | + ·2477 ± ·024 |
| ,, | mother | gross | " | 22 | + ·2671 ± ·023 |
| 31 | 22 | net | " | 99 | + ·1887 ± ·024 |
| 29 | father and | weekl | y incon | ne | + ·0493 ± ·025 |
| 99 | mother | 22 | ,, | | + ·0340 ± ·025 |
| Father's | s age and n | nother | s age | | +·7869 ±·0095 |
| Weekly | income and | d gross | size o | f family | $1455 \pm .025$ |
| ,, | ,, | \mathbf{net} | 22 | ,, | $-\cdot 0544 \pm \cdot 025$ |
| Gross s | ize of family | and ne | et size o | f family | +·8193 ± ·008 |



It will be seen that the *absolute* correlations for weekly income with both gross and net sizes of family are *negative*, and since both size of family and size of income increase with age, the partial correlations will be negative and higher still. In other words, we have definite numerical evidence that for this sample of material the lower the wage the larger the family.

The following table gives the partial correlations:

Partial Correlations.

| Age of | father a | nd gross s | size of famil | y for con | nstant age o | f mother | , | $_{m}\rho_{fs_{1}} = + \cdot 1569 \pm \cdot 024$ |
|--------|----------|------------|---------------|------------|--------------|-----------|---|--|
| 23 | ,, | net | " | 22 | ,, | >> | | $_{m}\rho_{fs_{2}} = + \cdot 1636 \pm \cdot 024$ |
| 12 | mother | gross | ,, | 29 | 23 | father | ••• | $_{f}\rho_{ms_{1}} = + \cdot 0481 \pm \cdot 025$ |
| 22 | 23 | net | 22 | 33 | ,, | ,, | • | $_f\rho_{ms_2}=-\cdot0103\pm\cdot025$ |
| Weekly | y income | and age | of father for | constant | t age of mot | ther | ••• | $_{m}\rho_{fw} = + .0366 \pm .025$ |
| ,,, | 57 | . ,,, | mother | ,, | " fatl | her | ••• | $_f\rho_{mw} =0078 \pm .025$ |
| ,, | ,, | gross | size of fam | ily for ce | onstant age | of father | | $_{f}\rho_{ws_{1}} =1684 \pm .024$ |
| 17 | ,, | net | 27 | 23 | 27 | " | | $_{f}\rho_{ws_{2}} =0688 \pm .025$ |
| 22 | ,, | gross | ,, | ,, | ,, | mother | • • • | $_{m}\rho_{ws_{1}} = -\cdot 1605 \pm \cdot 024$ |
| ,, | . ,, | net | 2.7 | ,, | ,, | ,, | | $_{m}\rho_{ws_{2}} =0620 \pm .025$ |
| ,, | 99 | gross | 22 | " | ages | of father | and mother | $_{mf}\rho_{ws_1} =1685 \pm .024$ |
| ,, | 7.7 | net | ,, | ,,, | " | . 22 | 23 | $_{mf}\rho_{ws_2} =0689 \pm .025$ |

Thus we see that correcting for both ages of father and mother does a little more than correcting for age of mother alone, but is practically the same as correcting for age of father alone. This results from the fact that in this material, where the majority of the families are really complete, there are greater correlations between age of father and both gross and net sizes of family than between age of mother and these variates.

The last two partial correlations show that

- (i) for constant ages of father and mother they will have had more children the lower the weekly income;
- (ii) for constant ages of father and mother they will have more surviving children the lower the weekly income;
- (iii) the converse propositions are of course also true, namely, the lower the weekly income the greater the size of both net and gross family will be.

The first form of the statements indicates

- (α) that increase in the size of a man's family is followed by a reduction, not an increase, of wage, or
- (b) that the men of the lower grades of occupation—the less mentally and physically equipped individuals—have the larger families.

As long as we restrict our inquiry to men under 48 as we have done, there is no fall of wage, but a slight increase with age. There is no reason to suppose that the mere birth of a child would ipso facto lower a man's wage. We are therefore compelled to accept the second alternative, that the larger families arise not among the better class of workmen, but among those of socially lower value.

Further, it is true that the death-rate is higher for a given rate of father and mother among those who have the larger families, but since the partial correlation of income and net size of family is also negative, it is clear that the relation of greater reproductivity for lower social worth holds for survivors as well as for total births although in a less marked manner.

All these points are illustrated on Diagram XXXIX. This diagram is constructed in the following manner: The multiple regression equation giving, as the case may be, the gross or net size of family for given income, given age of father and given age of mother, is found. The ages of father and mother are then given their mean values, and we have the relationship between size of family and a given wage when the ages of father and mother are considered constant, and equal to the mean ages of the parents of our population. We find the following results if s_1 be the gross and s_2 the net families for a given weekly income w shillings of parents of the mean ages of our population:

$$s_1 = 7.33 - .0468w,$$

 $s_2 = 4.99 - .0154w.$

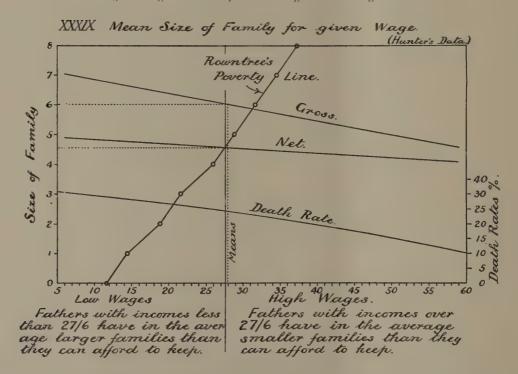
Thus, for example, when

```
Weekly income w = 10s., average gross family = 6.9

,, ,, w = 10s., ,, net ,, = 4.8

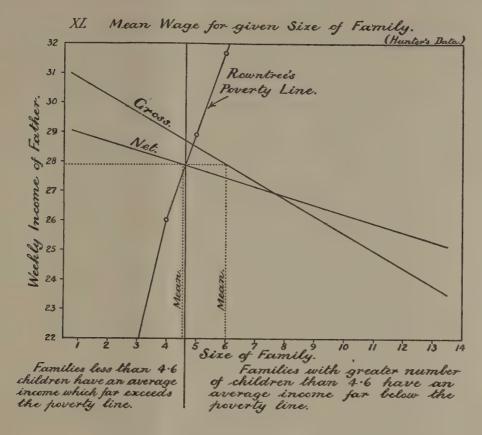
,, ,, w = 50s., ,, gross ,, = 5.0

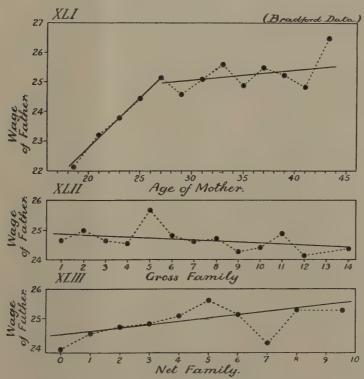
,, ,, w = 50s., ,, net ,, = 4.2
```



In precisely the same way, by dealing with wage for constant size of family and ages of parents, we obtain the average income for each size of family when the parents are of constant mean ages (Diagram XL). We find:

In the upper part of Diagram XXXIX we have lines showing the gross and net sizes of family, and how both fall as wage increases. We have also given the



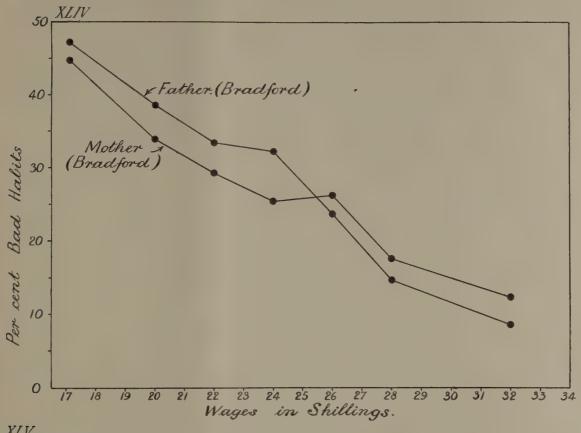


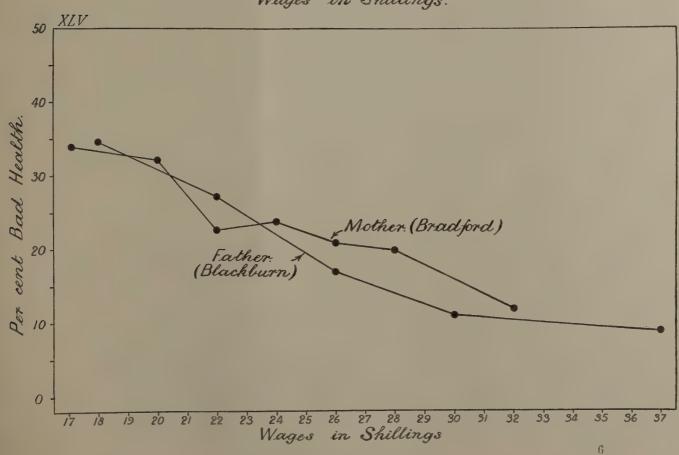
death-rate, and we see that the death-rate falls to nearly one-third of its value as the wage rises from 10s. to 60s. per week. Yet this apparently large change in the death-rate is not sufficient to equalise the survivors in the case of families with low and high wages. Those with the large weekly income still have the less net families.

The first impression one forms is that the lower income means lessened food, and that the higher death-rate may be due directly to the lower income. In a long investigation at present in progress we find, however, that, at any rate in infant mortality, the health and habits of the parents, not the environmental factors, are the all-mastering influences on the death-rate. Health is certainly, habits most probably very largely hereditary. The sense of orderliness and its absence are marked characteristics of human stocks. But in the wage-earning classes these factors of health and habits which dominate the infant death-rate are precisely those factors of physique and mentality which determine the social value of labour, and control the economic value of the human machine. Diagrams XLIV and XLV on p. 41 indicate the relation of wages to habits and health of parents. They are taken from data provided by the kindness of the Medical Officers of Health for Bradford and Blackburn (we have used Blackburn because no health was recorded for the father at Bradford). These must suffice to indicate for the present how health and habits are determining factors in wages.

The results of this section of our present inquiry therefore seem, precisely as the Glasgow conclusions, to demonstrate that size of family is related inversely to social value as determined by wages. We see no reason to assume that the data thus used are vitiated by the fact that they were procured in the ordinary routine of filling in the admission schedule to an imbecile asylum*. Indeed, this very fact provided a rather

* We investigated this point at considerable length. Of course the fact that one child must be an imbecile cuts out all cases of childless marriages, but this is a difficulty, if one at all, shared by several other methods of getting such data, e.g. the Glasgow method. We correlated for 1144 male imbeciles their place in family with their age at admission; the correlation was $+03\pm02$, or insensible. In other words, while it is possible to show that the two eldest-born are more liable to imbecility, their place in the family has no relation to their age of admission to the asylum. Next we considered the relation of gross size of family and age at admission for the same 1144 imbeciles; here we found a significant but small positive correlation of $+\cdot 14 \pm \cdot 02$. Thus, when the number of the family is large, the age at admission is likely to be slightly greater. It is not obvious what is the source of this small correlation, but we do not see how it would by special selection sensibly affect these families. Lastly we considered the correlation between the imbecile's place in family and the gross size of that family. Clearly the size of the family must always be as great as or greater than the imbecile's place in it, and the correlation table is accordingly one cut off at the diagonal, and there would certainly be correlation, if we proceeded to find it by the usual product moment method, but such correlation is, or clearly may be, wholly spurious. Such tables often occur and are of considerable interest for a number of reasons. They have been treated in the Laboratory recently by the following method: one variate x is greater than or equal to the other y; let us construct a table with the same marginal totals such that y is always equal to or less than x, but let its values be distributed according to an "urn-drawing" law, i.e. purely at random. This can be done. We have now two tables, one the actual table, the other one, with the same marginal frequencies, would arise if x and y were distributed by pure chance but subject to the condition that y is equal to or less than x; this table we call the independent probability table.





wider range of income and class than was to be found in material collected by M.O.H. visitations of the houses of new-born infants.

Tables XLVIII—LXI of the appendix provide the data upon which the above results are based so far as they extend when we limit the age of father to 48, the age of mother to 50, and the weekly income to 60s. as upper limits. More ample tables dealing with more than 2000 cases will be published when we have completed the investigation of this material from the standpoint of the economic and family conditions associated with imbecility. We have heartily to thank Miss Augusta Jones for filling in the sorting schedules from the raw data.

We have not longer delayed the publication of this evidence that net fertility is inversely proportional to social value because we believe that it is needful to meet the flat contradictions of this statement that have recently been made. But we have a considerable mass of data confirming our results from other centres which is at present being reduced. Thus wives in Bradford after 27 years of age may on the average hope in the next 18 years for a total increase of sixpence a week in their husbands' wages: see Diagram XLI, p. 39. Also, even without correction for age, the greater the gross family, the lower the wage of the father: see Diagram XLII, p. 39. With the net family without correction for age, there is on the average the wholly inadequate rise of one shilling, from 24s. 6d. to 25s. 6d., as we pass from a family of one to a family of ten children: see Diagram XLIII, p. 39. This rise is, however, only apparent as no correction has been made for the increase of wage with age, and of family with age. Other towns show like results, but these cannot be at present discussed. We merely state that no evidence out of the very large material at our disposal has been forthcoming at present to indicate any adequate increase of wage as family increases in size.

VI. Conclusions. The workers in the Department of Applied Statistics at University College have been accused of many prejudices and told that they were full of class bias and were setting class against class. The basis of such charges—apart from mere personal hostility—appears to have been laid in the opinion often expressed by the Staff of the Laboratory that the mentally and physically better classes in the community were reproducing themselves at a lower rate than the mentally and physically inferior classes. This opinion was founded on a good deal of

Now assume it to be the theoretical table, which is to be sampled to obtain the observed table, and to measure by χ^2 and P the probability that the observed result should arise as a sample from the independent probability table. If, as in this case, the number of cells is large, we shall be carried far beyond Palin Elderton's tables of χ^2 and P and have specially to calculate P. This was accomplished for us by Miss Julia Bell, who found P=94, or the probability that the observed results are a random sample from the independent probability table is very great indeed. We may reasonably suppose therefore that there is no relationship between the gross size of family and the imbecile's place in that family. The fact therefore that there are somewhat more imbeciles as first and second born children does not appear to influence by any selective process the gross size of the families we are dealing with. It may of course be argued that families of which at least one child is an imbecile cannot form a fair sample by which to test the relation of wage to size of family. We think that no spurious correlation is introduced by this condition, and, as far as economic status goes, these families appear to be a very reasonable sample from the extremely poor up to the well-to-do artizan, the clerk and the small shopkeeper class.

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statistical evidence, which is not met at all by such criticisms as those of Sir Shirley Murphy*, or the more violent appeals to social hatred of less worthy critics. As a matter of fact "class" in our technical terminology means not a division between socially "upper" and "lower," but exactly what is signified in the context. Thus we have "classes" of good health and of bad health, and of high earnings and low earnings in the professional world as well as in the artizan world. We have mothers of bad habits and good habits in both spheres. The health and the ability of a man following a professional calling—for example the forensic or the medical—in the long run and on the average are better than those of the general labourer. Both health and mentality are hereditary and we have evidence to show are not solely or in the main a matter of environment and training. We assert that a national danger arises if the restriction of the family is widely prevalent in the professional classes, and is relatively unpractised among general labourers. There is no real evidence here of "class" prejudice. To disregard the point is to disregard a chief factor of national deterioration. No race which does not show a dominant fertility among its healthier and abler members can persist indefinitely in the modern struggle where victory must go to the nation with the abler leaders and the fitter led. But the "class" divisions of good health and bad health, of ability and stupidity, are not purely horizontal dichotomies in the social sense. In the present paper we have studied the question of social value within one stratum. Those who assert that wages on the whole are not a rough measure of physique and mentality, will have much difficulty in defending their position. The data we have dealt with in this memoir indicate that when within one stratum we make a vertical division between those of high and those of low wage, it is the low waged worker, it is the parent of low social value, who shows the higher reproductivity. When we have corrected for age of parents then the larger the family the lower is the weekly income.

According to Mr Seebohm Rowntree each additional child after five should mean an extra 2s. 10d. per week increased expenditure at the line of the minimum standard of necessary expenditure †. His "line of primary poverty" is exhibited on Diagrams XXXIX and XL, pp. 38 and 39, against the weekly income of each net and gross sized family. We are not concerned here with how far the inhabitants of York had or had not incomes exceeding the "poverty line." We are concerned with the question of whether the estimate of Mr Rowntree is an unreasonable minimum at which to place the possibilities of a moderately decent existence. He starts with 11s. 8d. as the limit to the income of a childless husband and wife. Of this, 2s. 6d. goes for rent, 6s. for food, and 3s. 2d. for household requisites, which must include all clothing, coal, lighting, etc. We fail to find anything extravagant in this estimate; it appears to us to mark a real poverty line. We now come to the additional income required for each child. We find this under three headings (i) increased rent, i.e. 4s. for two and three children, 5s. 6d. for four to eight children, (ii) food, and (iii) household sundries.

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gude to work.

^{*} Journal of the Royal Sanitary Institute, vol. XXXIII. pp. 345 et seq., 1912.

[†] Poverty, a Study of Town Life, 1901, p. 110.

(i) The average rent paid in Glasgow by 8131 working-class families is about 3s. 5d., and the correlation between rent and size of family is '1810. The regression line for weekly rent is

Rent = $3.16 + .0507s_2$.

Thus for ten living children the rent would only amount to 3s. 8d. Still rents are somewhat higher in England than Scotland, and the Glasgow data show what they are, not what they should be. On the whole, probably Mr Rowntree has fixed the rent somewhat too high. (ii) He allots each child 2s. 3d. for food—under 4d. per day. This appears to us a veritable minimum. Finally (iii) he allows 7d. per week per child for household sundries, or 1d. per day. That sum must cover increased fuel, all clothes and boots, bedding, etc. This seems to be, if anything, an underestimate. We do not believe that, taken as a whole, the amounts suggested by Mr Rowntree are seriously in excess of a true poverty line. If we indeed knock off a shilling from the rent of the larger families or reduce the cost per child from 2s. 10d. to even 2s., it makes very little difference in the argument. The average family of 5.5 and over will then be living below the poverty line instead of families of 4.5 and over. The limit of wage will be about 20s. instead of 21s. 6d., i.e. families over this wage will on the average have fewer children than they can afford to keep, and families under this wage will have more children on the average than they can afford to keep. It is quite clear that a good deal of change could be made in Mr Rowntree's "Poverty Line" without substantially affecting the argument, for our data show that wages fall with increasing family and every such "Poverty Line" must show the need for marked increase of wage with the larger families. Thus while Diagram XXXIX shows how fertility is in no way fixed by social value as measured by wage —the higher waged parents having far fewer than the number of children they can afford to keep, and the lower waged parents far more than they can afford to keep, Diagram XL indicates that on the average large sized families—families over 4.5 —are living below the poverty line. There is in short no relationship, as there ought to be in every stable community, between size of family and social fitness as measured by wage. It is no wonder that the limitation of the family has become practically the rule among all intelligent artizans in our larger towns. The increase of the family forces them below the poverty line, and this must be so until in one form or another economic value is restored to the child. Take, for example, a family of 10; the average weekly wage of father* for such a net family from our present

^{*} The Royal Albert Asylum divides its patients into paying, contributory-paying and non-paying classes, and requires a statement as to all sources of income. Out of the 724 cases we have dealt with, only 40 showed any income due to wife or children beyond the wages of the father. These additions averaged 11s. for the 40 cases. This would give a very small increase of about 7d. a family on the father's wages, if spread out over the 724 cases. The difference would have been far more considerable had the bulk of the cases come from the cotton or woollen towns, but even there, when the mother has a large family, she is rarely employed, so that the joint-wages again decrease as the number of children increases. The Rowntree "Poverty Line" shows a rapid increase of expenditure as the children increase in number. The essential difficulty is the existence of 4 to 9 children, the eldest under 14, needing a mother's attention, and all to be supported on the very inelastic wage

data is 25s. 6d. The "poverty line" gives the minimum at 43s. In such a family the eldest child may be just 14 years old; the mother is very unlikely, with this size of family to look after, to be able to do any work, or to contribute substantially to the requisite extra 17s. 6d. a week. The child just 14 will be the only one to earn possibly a few shillings. It seems absurd with such facts staring us in the face to propose to still further reduce the economic value of the child by carrying on his or her school days till 16 years. Already the woollen and cotton manufacturing towns of England are not reproducing themselves—they depend on rural immigration. Unless a new economic value can be given to the well-born child, it will cease to exist in the requisite quantity at all; already our children fail in quality, for the large families come from those of inferior social value—those of poorer health and lower mentality, who can claim only the smaller wage.

Let us conclude with what seem to us almost obvious axioms of the requisite conditions for national progress:

- (i) Wages ought to be directly proportional to social value as measured by physique and mentality.
 - (ii) The size of family ought to be proportional on the average to wages.

These axiomatic statements cover, as far as we can perceive, the sole conditions under which national progress can be assured by the continuous propagation of the superior physical and mental elements in the community at the expense of the inferior elements.

"Sundry sentimental sociologists" have asserted that biological laws do not apply to human life, but they have made no attempt to meet the evidence: (i) that in man physical and mental characters are alike hereditary, (ii) that under the dominating economic and social tendencies of to-day the physically and mentally fitter members of each social class leave the fewer progeny, and (iii) that the physically inferior and mentally less fit members are directly encouraged by a vast system of charitable and poor-law institutions to provide a large supply of cheap but inefficient labour. Our economic conditions at the present time are such that on the average without these institutions wages are wholly inadequate to maintain the large families of the low-waged working classes, while the high-waged working classes, representing by far the most valuable element in the community—the stocks which would propagate physique and skill—are refraining in increasing numbers from the family warranted by their wages. Any nation under such conditions must deteriorate. To keep wages nearly proportional to social value, and the size of family on the average proportional to wages* is for the

of the father. The case of a town like Bradford, where the restriction of the family is largely practised, is noteworthy. The total income of the net family decreases from 0 to 5 children, but with 6 children the children's earnings become manifest and income rapidly increases. Thus in Bradford the growth of the family is spread over such a period that by the time five surviving children are reached, the eldest is old enough to earn, and the total earnings just exceed the poverty line. In other words, we see fertility shaping itself to fit the economic conditions and not proportional to social value.

* Physiologically sterile individuals undoubtedly exist, but the percentage of them in the artizan classes is very small, and in dealing with the average of large numbers they are of little account in the argument.

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future of the race far more important than doles to the aged or vails to the sick and unemployable. As a nation, we want to see the strong in body and mind issue for the work they have to do unhandicapped—willing and economically able to leave a stalwart family behind them. The economic system which decreases by five shillings the wages as the family rises from 2 to 11, and the social opinion which sanctions the workman with 50s. a week having two children and the workman with 25s. a week having eight children, are alike deadly from the standpoint of race-progress.

The man who will rouse the nation to understand this, so that it may force its servants the politicians to act, will achieve more than Cobden did when he taught his countrymen of 1840 to perceive that industrial progress depended at that date on low wages, that is to say on cheap food. The failure of the Government to carry an effective bill for the control of the feeble-minded is but one instance of the need we have of such a man, for as Lord Morley has told us: "Schemes of political improvement" will "henceforth spring up outside Parliament, instead of in the creative mind of the parliamentary leader; and official statesmanship" consist "less in working out principles than in measuring the force and direction of the popular gale. It is thus the non-official statesman who, by concentrating the currents of common sentiment or opinion, really shapes the policy which the official chiefs accept from his hands*."

To insure that fertility shall in the rough be correlated with social value—as it has ceased to be since 1878—is the greatest political problem of the near future; it is the sole condition whereby modern European civilisation, which, as keenly as in any admitted period of decadence, now loves pleasure and abhors pain, can hope to save itself at a time when the child is no longer thought of as a necessity, nor desired as an economic asset.

* Life of Cobden, vol. I. p. 152, London, 1881.

In the Appendix following—Tables I to LXI—the principal data upon which our conclusions are based are provided. The cost of printing this extensive material is of course evident in the price of this memoir. But we consider the publication of such tables absolutely necessary and their omission from several recent memoirs excludes, we hold, those investigations from the field of science. The statistical conclusions drawn in such memoirs are placed outside the range of criticism, and must either be accepted as dogma, or given the personal weight we attach to the authority of their writers. Such a treatment cuts at the very root of scientific efficiency.

Table I. Age of Mother and Size of Family. Glasgow Data.

Age of Mother

| | | 1519 | 20—24 | 25—2 9 | 3034 | 35—39 | 40—44 | 45—49 | Totals |
|--------|--------|------|------------|---------------|------|-------|-------|-------|--------|
| | 1 | 177 | 672 | 216 | 76 | 24 | 1 | | 1166 |
| | 2 | 48 | 752 | 423 | 112 | 21 | -2 | | 1358 |
| | 3 | 5 | 339 | 592 | 178 | 34 | 14 | | 1162 |
| | 4 | | 118 | 516 | 272 | 72 | 8 | 1 | 987 |
| | 5 | | 42 | 400 | 384 | 130 | 26 | | 982 |
| ily | 6 | | . 9 | 172 | 375 | 160 | 29 | 3 | 748 |
| Family | 7 | | 3 | 70 | 292 | 199 | 41 | | 605 |
| Fa | 8 | | 1 | 22 | 179 | 196 | 58 | 6 | 462 |
| of. | 9 | | | 7 | 81 | 192 | 49 | 3 | 332 |
| | 10 | | _ | 1 | 31 | 101 | 45 | 5 | 183 |
| Size | 11 | | | 1 | 13 | 72 | 52 | 3 | 141 |
| 002 | 12 | | | | 7 | 29 | 27 | 6 | 69 |
| | 13 | | | | | 9 | 18 | 1 | 28 |
| | 14 | | Transact . | | 1 | 3 | 6 | _ | 10 |
| | 15 | | | | | 4 | 4 | 1 | 9 |
| | 16 | | | | | 1 | 2 | 2 | 5 |
| | 17 | | | | | | 1 | · — | 1 |
| | 18 | | | | | 1 | | | 1 |
| | | | | | | | | | |
| | Totals | 230 | 1936 | 2420 | 2001 | 1248 | 383 | 31 | 8249 |
| | | | | | | | | | |

Table II. Father's Wage and Size of Family. Glasgow Data.

Weekly Wage in Shillings

| | | 4—6 | 7—9 | 1012 | 13—15 | 16—18 | 19—21 | 22—24 | 25—27 | 28—30 | 31 —33 | 34—36 | 37—39 | 40—42 | 4345 | 46—48 | 49—51 | 52—54 | 55—57 | 58—60 | Totals |
|----------------|-------------------------------------|--------------------------------------|---------|---|--|--|---|--|--|---|--|---|--|---|------|-------|-------|-------|-------|-------|--|
| Size of Family | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | 1 1 1 1 1 - - - | 1 1 1 1 | 9 10 10 8 9 11 4 5 2 - 3 1 | 24 15 21 12 10 6 2 3 4 3 1 | 108 124 134 95 89 71 57 36 25 15 13 5 | 97 141 145 113 106 94 66 55 33 14 9 | 105 99 117 98 83 71 55 44 22 16 9 . 5 | 42 85 79 71 73 40 45 28 17 12 10 -6 | 59 66 72 59 60 44 44 21 20 14 7 11 | 10 14 10 8 11 8 10 1 1 1 - | 39 17 35 31 31 26 12 20 10 7 5 3 | 3. 8. 11 13 8. 7 1 3 1 — 1 — — — — — — — — — — — — — — — | 8 6 7 5 2 2 2 1 1 | 1 1 | 1 | 1 1 1 | | | 1 1 | 498 588 641 517 487 381 300 221 138 82 63 35 9 |
| | 16 16 17 | _ | | | | _ | 2 | | | | | _ | | | | _ | _ | | | | 1 |
| | Totals | 4 | 4 | 73 | 104 | 776 | 882 | 725 | 508 | 479 | 76 | 236 | 56 | 34 | 2 | 1 | 3 | 0 | 0 | 2 | 3965 |

Table III. Rent and Size of Family. Glasgow Data.

Monthly Rent in Shillings

| | | 3—5 | 6—8 | 911 | 12—14 | 15—17 | 18—20 | 21—23 | 24 —26 | 2 72 9 | 30—32 | 33—35 | 3638 | 39—41 | Totals |
|----------------|---|---|-------------------------------------|---|--|--|---|---|--|---|-----------------|-------|------|-------|--|
| Size of Family | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | 5 6 4 2 6 1 1 3 — — — — — — — — — — — — — — — — — | 89 94 97 67 49 40 20 15 4 8 4 — 1 — | 413 487 416 320 286 182 121 84 51 23 21 11 3 4 | 384 377 331 280 285 236 260 184 117 59 40 25 9 | 226 199 245 260 266 227 106 147 131 77 65 21 10 4 | 80 44 50 47 43 41 19 26 14 17 11 7 6 1 | 11 8 6 15 13 12 4 7 10 2 5 1 — 1 | 19 6 8 3 9 4 5 5 3 2 2 1 — | 6 -3 -5 1 1 2 -1 1 | 1 1 2 2 1 1 - 2 | 1 2 | 1 | 1 1 | 1237 1225 1160 996 964 746 537 473 332 191 149 67 29 11 |
| | Totals | 29 | 488 | 2423 | 2588 | 1994 | 406 | 96 | 68 | 20 | 9 | 4 | 3 | 3 | 8131 |

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Table IV. Wage of Father and Age of Mother. Glasgow Data.

Wage of Father in Shillings

| Mother | 17—19 20—22 23—25 26—28 29—31 32—34 35—37 38—40 41—43 44—46 47—49 | | 10—12 1 11 24 9 7 3 2 2 1 | 13—15 5 18 34 28 14 8 5 9 —1 | 34 97 151 156 118 69 62 23 15 4 | 19—21 29 102 151 161 169 70 40 28 10 4 | 13 62 126 120 120 54 57 33 12 2 | 25—27 13 65 83 106 94 44 45 35 11 2 | 28-30 12 43 67 72 66 22 34 38 18 2 1 | 31—33 1 20 18 28 20 8 9 7 5 — | 34—36 1 17 29 38 21 24 37 14 8 5 | 37—39 | 1 2 9 10 8 - 1 1 | 43-45 | 46—48 | 49—51 ——————————————————————————————————— | 1 | Totals 110 444 705 738 643 314 193 80 20 1 |
|--------|---|---|--|-------------------------------|--|--|--|--------------------------------------|---------------------------------------|---|-----------------------------------|-------|---------------------------------------|-------|-------|--|---|---|
| | Totals | 3 | 60 | 122 | 729 | 764 | 599 | 498 | 375 | 116 | 194 | 55 | 32 | 2 | | 2 | 1 | 3552 |

Table V. Rent of House and Age of Mother. Glasgow Data.

Monthly Rent in Shillings

| Ī | | 3—5 | 6—8 | 9—11 | 12—14 | 15—17 | 18—20 | 21—23 | 24—26 | 27—2 9 | 30—32 | 33—35 | 36—3 8 | Totals |
|---------------|---|-----|---|---|---|---|--|--|---------------------------------|---------------|-------|----------------------------|---------------|---|
| Age of Mother | 17—19 20—22 23—25 26—28 29—31 32—34 35—37 38—40 41—43 44—46 47—49 | | 17 50 51 44 37 38 16 8 — 1 | 43 196 191 278 191 157 81 44 11 | 26 117 211 214 197 199 117 83 28 6 | 3 39 72 98 120 84 92 89 33 6 | 2 7 18 22 16 26 13 22 7 — | 1 1 7 5 2 - 6 2 2 - | 1 1 2 1 4 - 1 | 1 1 1 1 - 1 | 1 - 1 | - 1 - - - - | 1 | 92 411 555 666 568 508 332 251 82 15 |
| | Totals | 15 | 262 | 1193 | 1198 | 637 | 133 | 26 | 10 | 3 | 2 | 1 | 1 | 3481 |

Table VI. Wage of Father and Rent of House. Glasgow Data.

Weekly Wage in Shillings

| | | 4—6 | 7—9 | 1012 | 13—15 | 16—18 | 19—21 | 22—24 | 25—27 | 28—30 | 31—3 3 | 34—36 | 37—39 | 40—42 | 4345 | 46—48 | 49—51 | 58 —6 0 | Totals |
|------|---|-----|-----|-----------------------------------|--------------------------------|---------------------------------------|---|---|---|---------------------------------------|---------------------------|-------|--------------------------|--|------|-------|-------|---------------------------------|--|
| ly R | 3-5 6-8 9-11 12-14 15-17 18-20 21-23 24-26 27-29 30-32 | 1 - | | 1 6 35 22 2 1 — | 2 19 44 22 6 -1 | 8 98 344 203 85 7 — | 2 64 342 276 150 9 4 2 | 2 37 241 241 141 10 4 | 1 18 139 161 147 13 5 | 1 89 159 179 28 1 3 | 10 24 26 12 — | | 15 16 14 8 2 | - 2 8 13 12 2 - 1 | 1 | 1 | 1 1 - | - - - 1 1 - - | 16 247 1304 1202 851 124 22 9 |
| M | Totals | 3 | 3 | 67 | 94 | 746 | 849 | 676 | 486 | 461 | 73 | 222 | 55 | 38 | 1 | 1 | 2 | 2 | 3779 |

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Table VII. Wage of Man and Time out of Work. Birmingham Data.

Miss Lamotte's Series. All Ages.

Wage in Shillings

| | | 2-13 | 14—17 | 18—21 | 2225 | 26—29 | 3033 | 34—37 | Over 37 | Totals |
|--------|---|-------------------------------------|--|--|---|---|---|---|---|---|
| Time 2 | 0— 1— 2— 3— 4— 5— 6— 7— 8— 9— 4— 9— 0tals | 21·5 19·5 9·5 5 2·5 3 3·5 2·5 5 5 1 | 29·5 33·5 17 9·5 8 6 2 3 7·5 1 1 | 139 189 114·5 75·5 53·5 41·5 32 23·5 20 58 14·5 4·5 11·5 | 190 221·5 150·5 104·5 64·5 51·5 42·5 30 27·5 73 17 5·5 15 | 81·5 118 72 49 36 25·5 21 15·5 13 24·5 14 2·5 7·5 | 59·5 100 66·5 48·5 42·5 34 20·5 17 11 33 11 5 5·5 | 19 39·5 28·5 20·5 16 8 9 7·5 5 12 6 0·5 0·5 | 20 30 24·5 18 10 8·5 7 5·5 7·5 2 1·5 3 | 560 751 483 330·5 233 180 143 106 87·5 221 68·5 20·5 45 |

Table VIII. Wage and Time out of Work. Birmingham Data.
Miss Jones' Series. All Ages.

Wage in Shillings

| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | | · | | | | | | | | | | | | |
|--|----------------|--|---|--|---|---|--|---|--|--|---|--|-------------------------|-------|-------|--|
| $ \begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | | 9.5— | 13.5 | 17.5 | 21.5— | 25.5— | 29.5— | 33.5 | 37.5— | 41.5 | 45.5- | 49.5— | 53.5— | 57.5— | Totals |
| | out of Work in | 1— 2— 3— 4— 5— 6— 7— 8— 9— 14— 19— | 1.5 1.5 1.5 0.5 — 0.5 1 0.5 — | 10 8 1 0.5 0.5 0.5 0.5 0.5 - | 56·5 63·5 31·5 19 10 6·5 4·5 5 6·5 16·5 2 | 80·5 88·5 41 28 18 18 14 5·5 5·5 21·5 3·5 | 60 57 28·5 18·5 14·5 11·5 8 3·5 1·5 8 | 34 40 27 19·5 8·5 4 4·5 4·5 3·5 1·5 3 | 5·25 13·25 11 9 4 3 2·5 1·5 1 4 2·5 0·5 | 7·75 8·75 11·5 8 2·5 2·5 2·5 1·5 2 | 4 9.5 5.5 3 1.5 1 0.5 1 3.5 | and the second s | 0·5 1 0·5 - 0·5 0·5 0·5 | 0.5 | 1 | 260 292 159 106 59·5 48 39 23 22 59·5 |

Table IX. Time out of Work and Number of Living Children.

Birmingham Data. Miss Lamotte's Series. All Cases.

Time out of Work in Months

| | | 0 | 1 | 2— | 3 | 4 | 5 | 6— | 7— | 8— | 9— | 14— | 19 | 24— | Totals |
|---------------------------|--|--|--|---|---------------------------------------|--|--|--|---|---|------------------------------------|---|---|--|--|
| Number of Living Children | 0 1 2 3 4 5 6 7 8 9 10 11 12 | 31 80 114*5 114*5 94 69*5 46*5 25 14 8*5 5 | 52 124·5 150 144·5 131 89·5 48 29 16·5 12·5 5·5 2·5 | 36 90·5 96 92 81 47 32 18·5 7 5·5 2·5 | 29 71 65 58 48 35 25·5 10·5 5 5·5 0·5 | 23·5 55·5 50·5 40·5 28·5 21 14 10 3·5 3·5 0·5 0·5 | 16·5 44 40·5 28 26 14·5 11·5 8·5 2 1 0·5 | 11 32 32·5 25 22·5 14 8 4·5 3 1·5 | 9 19 25 20 15 10 4.5 8 5 1 | 7 14·5 21·5 16·5 14 7·5 5·5 1 3·5 2 0·5 | 21·5 52 50·5 37 34 24 17·5 8 2·5 1 | 5.5 17.5 16.5 10.5 7 9 3 7 3 — | 2·5 5·5 5·5 2 6 3·5 1 0·5 1 | 9·5 13 14 20·5 13 7·5 11·5 2 2·5 1 1 | 254 619 682 609 520 352 231 128 68 45 19 |
| | 13 | 1 | 1.5 | 0.5 | 950 | 051.5 | 100 | 154 | 110 | | 052.5 | 70 | | 00.5 | 3, |
| | Totals | 607 | 807 | 509.5 | 353 | 251.5 | 193 | 154 | 112 | 94 | 253.5 | 79 | 31 | 96.5 | 3541 |

Table X. Time out of Work and Age of Man. Birmingham Data.

Miss Lamotte's Series. All cases.

Time out of Work in Months

| , | 0 | 1 | 2— | 3— | 4 | 5 | 6— | 7 | 8— | 9— | 14 | 19— | 24 | Totals |
|--|--|---|--|--|---|------------------------------------|---|---|-------------------------------------|--|---|---------------------------------|---|--|
| 18— 23— 28— 38— 38— 443— 48— 53— 58— 63— 73— | 9·5 72 127·5 130·5 111·5 54·5 35·5 28 19 14·5 4 0·5 | 16 94 165·5 160·5 133 83·5 59·5 42·5 28·5 15·5 7 1·5 | 13 67 93 108 85 51·5 31·5 22·5 21·5 11 5·5 | 9 50·5 68 64 57 36·5 24 17 16 7 3·5 0·5 | 8·5 38·5 44·5 39·5 38 24·5 24 15·5 11·5 | 7·5 28·5 35 33 25·5 16 21·5 15 4 1 | 3 23·5 32 25·5 17·5 17 10 3·5 1·5 | 1 13 24·5 15·5 14 12 14 7·5 6 3·5 1 | 1·5 14 18·5 15·5 9·5 6 10 9 6·5 3·5 | 5 34 53 27 29 32 24 22 11 14 2.5 | 13·5 14·5 9 12·5 6·5 4 7 6·5 3 2·5 | 0·5 2 3 5 7 2 3 2 2·5 2 0·5 1·5 | 0·5 1·5 11 9 9·5 9 11 8 13·5 12·5 6·5 4·5 | 75 452 690 642 549 351 279 206 151 98 37 |
| Totals | 607 | 807 | 509.5 | 353 | 251.5 | 193 | 154 | 112 | 94 | 253.5 | 79 | 31 | 96.5 | 3541 |

Table XI. Age of Father and Number of Living Children when Time out of Work is provided. Birmingham Data. Miss Lamotte's Series. All cases.

Number of Living Children

| | 18 23- 28- | 0 14 32 39 | 1 45 178 137 | $egin{array}{c c} 2 \\ \hline 15 \\ 149 \\ 176 \\ \end{array}$ | 3 1 67 164 | 4 | 5 - 2 42 | 6 | 7 - 3 | 8 - | 9 | 10 | 11 | 12 | 13 | 75 452 690 |
|---------------|---|---------------------------------------|---|--|---|---|--|--|---------------------------------------|------------------------------|------------------------------|----------------------------|----------------------------|----------------------------|----|--|
| Age of Father | 33— 38— 43— 48— 53— 58— 63— | 26 30 26 23 19 25 9 | 78 57 37 21 24 23 12 4 | 119 80 40 39 27 17 17 | 140 76 47 40 30 23 15 | 122 93 45 51 33 14 14 | 99 81 43 38 20 14 -6 | 41 73 40 33 12 12 7 4 | 16 22 36 17 12 10 8 | 22 18 6 9 8 3 | 9 13 4 13 1 5 | 1 6 5 1 4 2 | - 1 3 2 2 - | - - 1 1 - 1 | 21 | 642 549 351 279 206 151 98 |
| | 73— Totals | 4 | 619 | 682 | 609 | 520 | 352 | 231 | 128 | 68 | 45 | 19 | 8 | 3 | 3 | 3541 |

Table XII. Age of Father and Number of Living Children. Birmingham Data.

Miss Lamotte's Series. Men under 43 and out of work all times, with or without age of wife.

Number of Living Children

| | | 0 | 1 | 2 | 3 | 4 | 5 | 6. | 7 | 8 | 9 | 10 | Totals |
|---------------|--|---|---|---|--|--------------------------------|---|---|----|----|-----|----|---|
| Age of Father | 19— 21— 23— 25— 27— 29— 31— 35— 35— 37— 39— 41— | 3 11 15 8 19 14 14 13 10 9 12 13 | 4 41 59 87 68 57 44 42 26 27 13 | 1 14 48 60 76 82 60 51 54 30 45 18 | $\begin{array}{ c c c }\hline 1\\\hline -7\\\hline 34\\\hline 66\\\hline 73\\\hline 51\\\hline 64\\\hline 60\\\hline 38\\\hline 35\\\hline 19\\\hline \end{array}$ | — 1 14 18 55 56 57 48 47 33 30 | 6 14 24 39 45 34 41 21 | 2 3 3 15 16 26 34 23 | | | 4 5 | | 9 66 130 203 255 300 254 286 269 225 251 160 |
| | Totals | 141 | 495 | 539 | 448 | 359 | 224 | 122 | 41 | 23 | 9 | 7 | 2408 |

| | | | | | | TAUTHOR | 1 01 11 | IVING O | muren | | | | | |
|-----------------------------|---|-----|------|--|---|---|---------|---------------------------|--|--------------------------------------|---------|----|------|--|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 1113 | Totals |
| Wage of Father in Shillings | 2— 6— 10— 14— 18— 22— 26— 30— 34— 38— 42— 46— 50— 54—100 | | | 2 10 22 131 186 86 70 21 15 6 2 — | 1 12 18 98 163 74 64 19 17 3 — 1 | -2 2 14 85 102 59 65 26 18 3 | | -2 1 4 22 35 24 18 10 9 1 | 1 1 1 1 9 16 9 3 3 3 - | 1 1 6 7 2 6 4 2 | 3 2 3 1 | | | 0 12 44 99 591 780 381 350 124 85 11 2 5 4* |
| | Totals | 135 | 500. | 551 | 470 | 376 | 239 | 126 | 46 | 29 | 9 | 7 | 0 | 2488 |

* Mean 80s.

Table XIV. Wage and Age of Man. Birmingham Data. Miss Lamotte's Series. Men under 43. With or without Age of Wife.

Age of Man 19— 21— 23— 25— 29_ 31_ 33_ 35— | 37— | 39— | 41— |Totals 27---6-10-2 3 10 40 82 42 45 11 9 Wage of Man in Shillings 1 6 9 75 67 50 37 12 10 12 3 7 68 86 40 29 11 6 2 6 30 21 3 6 6 10 25 45 24 26 13 9 4 8 65 73 38 33 22 10 44 100 591 778 382 349 124 85 11 11 59 73 23 33 3 10 67 94 62 41 18 8 1 14 58 85 39 40 12 22 14— 18— 4 46 49 21 12 3 56 100 39 47 19 9 2 205 253 312 268 295 275 2487 Totals 140

* Mean 80s.

Table XV. Age of Father and Number of Living Children. Birmingham Data.

Miss Lamotte's Series. Men under 43. With or without Age of Wife.

| | | | | | | | Tigo o | I T. Chillie | | | | | | |
|---------------------------|---|---|---|--|---|---|--|---|--|--|---|---|--|---|
| | | 19— | 21— | 23— | 25— | 27— | 29— | 31 | 33— | 35— | 37— | 39— | 41 | Totals |
| Number of Living Children | 0 1 2 3 4 5 6 7 8 9 10 11—13 | 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 12 42 15 — — — — — | 16 67 52 8 — — — — — — — — — — — — — — — — — — | 8 87 63 37 14 — — — — — 209 | 18 68 74 67 20 7 1 —————————————————————————————————— | 111 58 88 82 57 15 3 2 — | 16 44 61 53 65 25 5 1 2 | 11 43 55 65 60 40 17 5 — 1 — | 9 25 55 64 53 46 15 11 — | 8 30 32 40 53 41 29 9 6 — — — — — — 248 | 12 27 42 37 34 43 34 12 12 12 4 | 13 11 19 20 30 23 21 7 9 5 3 | 137 506 556 474 386 241 1125 47 29 0 |
| | | | | | | | | | | | | | | |

Table XVI. Time out of Work and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men under 43, less than 7 months out of work.

Time out of Work in Months

| | 0 | 1— | 2— | 3 | 4 | 5 | 6— | Totals | 7— | 8 | 9 | 14— | 19 | 24 | Grand Totals |
|----------------|---|---|--|--|---|---|--|---|---|---|--|--|--|--|---|
| er of Living (| 1 62·5 2 97 3 98 4 69 55 52·5 7 10 4 2·5 3 3 | 25 98·5 126·5 114·5 97·5 59 27 10 6·5 2 2·5 | 18 75.5 81.5 67 63 31.5 18 7 3 1 0.5 | 16.5 62.5 50.5 41 31.5 23 14.5 5 1.5 2 0.5 | 14 45 37·5 26 19·5 13·5 7·5 3 1 1·5 0·5 | 8·5 34 33·5 16·5 18 9 6·5 3 0·5 — 129·5 | 6 27 25·5 17·5 13 7 3 1 1·5 — | 109 405 452 380·5 311·5 195·5 108 39 18 9 7 | 5 15 18 14·5 8 4 1·5 — | 4 12 15 12·5 9 4 1·5 — — — 59 | 15 40 30 23 20 13 5 1 1 — | 2 15·5 13 8 4·5 3·5 1 1 1 ——————————————————————————————— | 2 3 3·5 1·5 3·5 1·5 2·5 ————————————————————————————————— | 4 4·5 7·5 8 2·5 2·5 2·5 - - - - - 31·5 | 141 495 539 448 359 224 122 41 23 9 7 |

Table XVII. Age of Man and Time out of Work. Birmingham Data.

Miss Lamotte's Series. Men under 43, less than 7 months out of work.

Time out of Work in Months

| | 0— | 1— | 2— | 3— | 4- | 5— | 6 | Totals | 7 | 8 | 9— | 14— | 19: | 24— | Grand Totals |
|---|---|---|---|--|--|---|---|---|---|---|--|-----|--------------------------------------|-----|---|
| 19— 21— 23— 25— 31— 25— 31— 38— 35— 37— 39— 41— Total | 8 18·5 34 43·5 57·5 46 53 57 49 51·5 31·5 | 2·5 13·5 26 42 58 69 64·5 70·5 67 56·5 62·5 37 | 1·5 11·5 18·5 26 39 41 35·5 47 47 39·5 38 21·5 | 1 8 16·5 21 27 30 24 29 26 27 22·5 16·5 | 0·5 8 14 17·5 16·5 18·5 16·5 20 15·5 12 19·5 10·5 | 0·5 7 8 14·5 12·5 14 14·5 13 15·5 8·5 14·5 7 | 0·5 2·5 6 12 13·5 14 10 11·5 10 9 6 6·5 | 8 58·5 107·5 167 210 244 211 244 218 201·5 214·5 130·5 | 1 3·5 6 10·5 10·5 7 9 4·5 6·5 4 5·5 | 1·5 3·5 7 8 7 7 8·5 5 4 2·5 9 | 1 4 11·5 15·5 26·5 17 16·5 7 7·5 14 11 | | 0·5 1 1·5 1 1·5 2·5 0·5 4 2·5 1 17·5 | 0·5 | 9 66 130 203 255 300 254 286 269 225 251 160 |

^{*} The entries are halved if they fall exactly on the month; the other half is in the 7-8 months group.

Table XVIII. Age of Father and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men under 43, less than 7 months out of work.

Age of Father

| | ļ | 19 | 21— | 23— | 25— | 27— | 29— | 31— | 33 | 35— | 37— | 39— | 41 | Totals |
|---------------------------|--|-----------|---|---|--|--|--|---|--|--|---|--|--|---|
| Number of Living Children | 0 1 2 3 4 5 6 7 8 9 10 | 2 4 1 1 8 | 9 38·5 11 — — — — — — 58·5 | 11·5 47·5 42·5 5 1 ————————————————————————————————— | 5 70 49·5 29·5 13 ——————————————————————————————————— | 15 52·5 64 59·5 12 6 1 ———————————————————————————————— | 9 48·5 66·5 55·5 46·5 13 3 2 — | 11 34·5 44 44 49·5 23 3 1 1 | 10 33·5 44·5 56·5 52·5 28 14 4 1 | 8·5 18 51·5 51 44 41 10 ————————————————————————————— | 8 24·5 28·5 33·5 42 30 23 8 4 | 9 23 5 35 5 30 27 37 5 30 6 4 3 | 11 10 13·5 15 24 17 20 5 7 5 3 | 109 405 452 380·5 311·5 195·5 108 39 18 9 7 |

Table XIX. Time out of Work and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42, with or without Wife's Age.

Number of Living Children

| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
|----------------------------|--|---|---|--|---|---|--|---|--|--|--|---|--|-----|-----------|---|
| Time out of Work in Months | Under 1 month 1— 2— 3— 4— 5— 6— 7— 8— 9— 14— 19— 24— | 10 27 18 12·5 9·5 8 5 4 3·5 0·5 5·5 | 17·5 26 15 8·5 10·5 10 5 4 2·5 12 2 2·5 8·5 | 17·5 23·5 14·5 14·5 14·5 17 7 7 6·5 20·5 3·5 2 6·5 | 16·5 30 25 17 14·5 11·5 7·5 5·5 4 14 2·6 0·5 12·5 | 25 33·5 18 16·5 9 8 9·5 7 5 14 2·5 2·5 10·5 | 17 30·5 15·5 12 7·5 5·5 7 6 3·5 11 5·5 2 5 | 15 21 14 11 6·5 5 3 4 12·5 2 1 9 | 15 19 11·5 5·5 7 5·5 3·5 3 1 7 6 1 2 | 10 10 4 3·5 2·5 1·5 3 2·5 1·5 2 0·5 2·5 45 | 6 10·5 4·5 3·5 2 1 1·5 1 2 3 ————————————————————————————————— | 2 3 2 - 0.5 2.5 - 1 1 | 1.5 2.5 1 0.5 0.5 0.5 - 0.5 0.5 1 - - | 2 1 | 1 1.5 0.5 | 156 238 143·5 104·5 82·5 63·5 52·5 44 35 105·5 29·5 13·5 65 |

Table XX. Time out of Work and Age of Man. Birmingham Data. Miss Lamotte's Series. Men over 42, with or without Wife's Age.

Time out of Work in Months

| | 0 | 1 | 2— | 3 | 4 | 5— | 6— | 7— | 8 | 9— | 14— | 19 | 24. | Totals |
|---|--|---|--|--|--|--|---|---|---|---|--|--|---|---|
| 43— 45— 47— 49— 51— 53— 55— 57— 63— 65— 67— 69— 71— 73— 75— | 24 19 19 19 19 9 15 7 7 5.5 4 1 1 0.5 | 35·5 33·5 26·5 27·5 20 21 16 14 12·5 7·5 8 5 4·5 2·5 2·5 1 | 19·5 23 17·5 13 10 13 8 10 8·5 4·5 5 3·5 2·5 2 | 13 18 14 11 4·5 8·5 6 7 9 2·5 3·5 1·5 3 2 0·5 — | 8 14 9 12 5·5 7 7 3 8·5 1·5 1·5 1·5 1·5 1·5 | 5 9·5 7 10·5 5·5 8·5 6·5 1·5 3 0·5 2·5 1 1 — — — — — — — — — — — — — — — — — | 5·5 8 7·5 8 5 6·5 3·5 1·5 1 1 1 | 3 6·5 5·5 5 6 4 3 2 2 2·5 1 0·5 1 | 1 4·5 2 4 4·5 4 3·5 2·5 3 1·5 1·5 5 0·5 — — — — — — — — — — — — — — — — — — — | 11 19·5 9 7·5 9 7 8·5 3 5·5 8·5 4 1·5 2·5 | 3·5 2·5 1 1 2·5 2·5 1·5 3 4 2·5 0·5 1·5 3 0·5 | 2 1·5 0·5 0·5 1·5 1·5 1·5 0·5 0·5 0·5 0·5 0·5 | 2 5 6 5 3 3 5 5 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 | 131 165 126 123 85 103 73 69 43 47 33 115 9 64 |
| Totals | 156 | 238 | 143.5 | 104.5 | 82.5 | 63.5 | 52.5 | 44 | 35 | 105.5 | 29.5 | 13.5 | 65 | 1133 |

Table XXI. Age of Father and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42, when time out of work given.

| 43— 13 11 13 14 22 20 15 10 8 5 — — — — — — — — — — — — — — — — — — | | | | : | Numbe | r of L | iving (| Children | t. | | | | | |
|---|---|---|---|--|--|--|---|---|---------------|---|----------------------------|----|----|--|
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | | 0 1 | 2 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
| | 45— 47— 149— 51— 53— 55— 57— 161— 63— 65— 67— 69— 71— 73— 77— | 9 20 11 11 8 10 8 5 7 12 7 11 10 10 16 6 4 9 6 4 3 6 1 4 4 1 2 1 2 1 1 1 | 19 24 21 20 20 18 6 11 18 17 7 10 7 10 5 6 10 4 6 4 6 2 2 - - - - - - - - | 19 19 21 15 16 12 9 7 3 7 3 5 2 — | 16 14 14 17 8 9 5 8 4 3 2 2 2 1 | 19 12 17 10 7 4 4 5 4 4 2 3 2 — | 18 10 7 8 2 5 6 5 4 4 2 4 — 1 — | 9 3 4 5 2 4 4 2 2 3 — — — — — — — — — — — — — — — — — | 6 3 3 3 5 - 5 | 5 -1 -2 1 1 | 2 1 1 2 -1 | 1 | 2 | 131 165 126 123 85 103 73 69 69 43 31 15 9 6 4 |

Table XXII. Wage of Father and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42, with or without Age of Wife.

| | | | | | | Nı | umber | of Livin | ng Chil | dren | | | | | | |
|-----------------------------|---|--|--|---|--|--|-------|--|--|--|--------------------------------------|----|---|-----|-------------------|--|
| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
| Wage of Father in Shillings | 2— 6— 10— 14— 18— 22— 26— 30— 34— 38— 42— 46— 50— 54—100 | 5 6 30 26 10 8 7 5 — | 2 6 6 35 29 15 14 3 5 2 - 1 | 1 3 4 49 43 17 13 4 3 1 — — — — — — — — — — — — — — — — — — | 1 7 9 42 41 16 20 8 5 1 | -2 10 6 39 43 28 13 6 6 - - 1 1* | | 5 7 27 15 14 20 4 1 —————————————————————————————————— | 2 8 23 25 10 12 7 3 3 — | 2 3 11 11 3 9 1 2 - - | 2 8 7 3 9 3 1 — | 13 | - - 2 3 2 - 1 - - | 1 1 | 1 - 1 - 1 - 1 1 3 | 3 112 46 57 302 280 141 139 53 39 9 0 3 1 |

* 80s.

Series. Men over 42, with or without Wife's Age.

Table XXIII. Age and Wage of Man. Birmingham Data. Miss Lamotte's

| | | | | | | Wage | of Man | in Sh | illings | | | | | | |
|---|---|-------------------------|---|--|--|--|---|--|---|---|---|-----|---|--------|--|
| | 2— | 6— | 10 | 14— | 18— | 22— | 26— | 30 | 34— | 38— | 42 | 46— | 50— | 54—100 | Totals |
| 43— 45— 47— 49— 51— 53— 57— 57— 63— 65— 65— 66— 71— 73— 75— 77— 87— | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | 1 1 3 2 1 2 - 1 - 1 2 : | 7 4 3 2 2 4 1 4 4 1 2 6 1 3 1 | 9 8 3 5 5 5 5 1 6 4 5 2 2 2 1 1 | 35 55 31 26 17 25 16 21 23 17 16 11 10 4 1 | 39 33 29 38 24 32 24 17 16 14 12 9 3 —————————————————————————————————— | 15 21 14 22 15 15 13 4 8 5 3 1 1 — | 21 26 21 20 15 10 6 4 4 2 1 2 2 1 | 5 8 10 5 11 3 4 4 1 1 1 | 3 6 5 6 - 3 2 8 1 - 2 1 2 - - | 3 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - | 1* | 135 165 119 125 90 99 69 68 67 49 46 29 13 7 7 7 5 |
| Totals | 3 | 14 | 48 | 60 | 310 | 295 | 144 | 141 | 56 | 39 | 9 | 0 | 3 | 1 | 1123 |

* 80s.

Table XXIV. Age of Father and Number of Living Children. Miss Lamotte's Series. Men under 43, whose wage is given.

Number of Living Children

| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
|---------------|---|--|---|--|---|---|--|---|---|---------------------------|-------------|-----------------------|--|----------------------------|----|--|
| Age of Father | 43— 45— 47— 49— 51— 53— 55— 57— 59— 61— 63— 65— 67— 73— 75— 75— 77— | 12 10 11 10 6 7 8 9 15 2 4 2 2 1 1 | 12 20 10 10 5 11 8 12 7 8 4 4 1 | 11 19 18 18 18 7 19 9 6 7 6 11 3 5 1 | 15 21 17 20 14 12 10 10 8 6 5 4 4 2 2 | 25 18 19 21 15 14 8 6 4 7 3 4 3 | 22 21 15 14 15 9 4 6 4 2 2 3 2 1 1 | 14 18 11 15 12 6 4 4 6 3 3 2 2 1 | 13 21 10 8 8 2 5 6 4 4 2 4 1 1 | 8 8 2 - 3 6 6 3 4 4 2 2 1 | 4 5 5 3 3 4 | 1 4 - 1 - 2 1 1 - 2 1 | 1 2 1 - 2 1 1 1 - - | i i - - - 1 | 2 | 137 166 118 123 85 97 70 67 66 41 44 28 29 13 |
| | Totals | 103 | 120 | 140 | 153 | 156 | 132 | 102 | 95 | 43 | 33 | 13 | 8 | 2 | 3 | 1103 |

Table XXV. Time out of Work and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42, less than 7 months out of work.

| Number | of | Living | Children |
|--------|----|--------|----------|
|--------|----|--------|----------|

| Months | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
|----------------|---|---|---------------------------------------|---|---|---|---|----------------------------------|--|---|--|-------|---------------------|----|---------------------------|--|
| out of Work in | Under 1 Month 1———————————————————————————————————— | 10 27 18 12.5 9.5 8 5 | 17.5 26 15 8.5 10.5 10 | 17.5 23.5 14.5 14.5 13 7 | 16.5 30 25 17 14.5 11.5 7.5 | 25 33.5 18 16.5 9 8 9.5 | 17 30·5 15·5 12 7·5 5·5 7 | 15 21 14 11 6.5 5 | 15 19 11·5 5·5 7 5·5 3·5 | 10 10 4 3.5 2.5 1.5 1.5 | 6 10·5 4·5 3·5 2 1 1·5 | 2 3 2 | 1.5 2.5 1 | 2 | 1 1.5 0.5 — — | 156 238 143·5 104·5 82·5 63·5 52·5 |
| Time | Totals | 90 | 92.5 | 97 | 122 | 119.5 | 95 | 77.5 | 67 | 33 | 29 | 7 | 6 | 2 | 3 | 840.5 |

Table XXVI. Time out of Work and Age of Man. Birmingham Data.

Miss Lamotte's Series. Men over 42, less than 7 months out of work.

Age of Man

| ths | | 43 | 45— | 47 | 49— | 51— . | 53 | 55 | 57— | 59 | 61— | 63— | 65 | 67— | 69 | 71— | 73— | 75— | Totals |
|--------------------|--|---|--|---|---|------------------------------------|--|--------------------------------------|--|-----------------------------------|--------------------------------------|----------------------------------|-------------------------------|--------------------------------|--------------------------------|------------------------------------|------------------------------------|-----|--|
| out of Work in Mon | Under 1 month 1— 2— 3— 4— 5— 6— | 24 35·5 19·5 13 8 5 5·5 | 19 33·5 23 18 14 9·5 8 | 19 26·5 17·5 14 9 7 7·5 | 19 27·5 13 11 12 10·5 8 | 9 20 10 4·5 5·5 5·5 | 15 21 13 8·5 7 8·5 6·5 | 7 16 8 6 7 6.5 3.5 | 10 14 10 7 3 1.5 1.5 | 8 12·5 8·5 9 8·5 3 | 7 7·5 4·5 2·5 1·5 0·5 | 7 8 5 3.5 1.5 2.5 | 5.5 5 3.5 1.5 1.5 | 4 4.5 3.5 3 2 1 | 1 2·5 2·5 2 — 1 | 1 2·5 2 0·5 0·5 0·5 | 0.5 0.5 - 0.5 1.5 1 | 1 | 156 238 143·5 104·5 82·5 63·5 52·5 |
| Time o | Totals | 110.2 | 125 | 100.5 | 101 | 59.5 | 79.5 | 54 | 47 | 50.5 | 24.5 | 30.5 | 18 | 19 | 9 | 7 | 4 | 1 | 840.5 |

Table XXVII. Age of Father and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42, less than 7 months out of work.

Number of Living Children

| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
|---------------|---|--|---|---|---|--|---|--|--|--|---|-------|-----------|----|----|---|
| Age of Father | 43— 45— 47— 49— 51— 53— 55— 57— 61— 63— 65— 67— 71— 73— 75— | 11 7 9·5 6 7·6 5 14 3 5 3 1 2 | 8·5 14·5 6·5 9 5 9·5 10 7·5 6 2 3 4 1 | 11 14·5 11·5 15·5 5 13·5 5 2 5·5 2 1 2 | 11 20 16·5 14·5 5 14 8 9 6·5 4 4 0·5 | 19 12 17 18·5 9·5 10·5 8 6 6 2 6 1 2 1 — | 18 11·5 12·5 13·5 11·5 7 4 3 5 2·5 1 1 ·-5 2 1 | 11 14 10 10·5 8·5 5 4 2 1·5 1 | 9 13·5 10 5 6 2 3 5 2 2 3·5 1 3 — | 8 7 2·5 3 3 0·5 3 1 2 ————————————————————————————————— | 4 6 2·5 3 6 2·5 2 - - - - | 1 1 1 | 1 2 1 - 2 | | 2 | 110·5 125 100·5 101 59·5 79·5 54 47 50·5 24·5 30·5 18 19 9 |
| | Totals | 90 | 92.5 | 97 | 122 | 119.5 | 95 | 77.5 | 67 | 33 | 29 | 7 | 6 | 2 | 3 | 840.5 |

ON THE CORRELATION OF FERTILITY WITH SOCIAL VALUE 57

Table XXVIII. Time out of Work and Number of Living Children.

Birmingham Data. Miss Jones' Series. Men under 43.

Time out of Work in Months

| | | Under 1 Month | 1 | 2— | 3— | 4 | 5 | 6 | 7— | 8— | 9— | 14 | 19— | 24 | Totals |
|---------------------------|--|---|---|---|---|---|---|--|---|---|--|-----------------------------|---|--|---|
| Number of Living Children | 0 1 2 3 4 5 6 7 8 9 10 11 12 | 9 33 45 38 46 39 21.5 6.5 5 2 0.5 — 245.5 | 13 31 51·5 53 46 33·5 20 7·5 5 1·5 0·5 — | 6 14·5 31 2915 21·5 11·5 6·5 4 2·5 1-5 0·5 0·5 | 3 13·5 21 17·5 14 6·5 6 2 3 1 — 0·5 1 | 1 12 7·5 9·5 5 4 3 2 1·5 — 1 0·5 | 2 8 6 7.55 5.53 3.55 1 1.5 1 — | 1.5 5 6 7 4.5 2.5 1 0.5 1.5 — | 1 3 3 3 2 1 — — — — — — — — — — — — — — — — — — | 1.5 3.5 3 2.5 0.5 0.5 ————————————————————————————— | 3 12·5 8 5·5 4 4 2·5 1 — 1 — 41·5 | 3 4 5 4.5 2 | 2·5 1·5 1 0·5 — — — — — — — — — — — — — — — — — — — | 1 1·5 2·5 2 2·5 — — — — — — — | 45 144 191 181 156 106 63 26 21 7 1 3 2 |

Table XXIX. Age of Man and Time out of Work. Birmingham Data.

Miss Jones' Series. Men under 43.

Age of Man

| | | 19— | 21— | 23 | 25— | 27— | 29— | 31— | 33 | 35 | 37— | 39— | 41 | Totals |
|--------------------|---|------------------------------|---|---|--|---|---|--|--|--|---|---|---|--|
| Months out of Work | Under 1 1 2 3 4 5 6 7 8 9 14 19 24 and over | 1.5 1.5 0.5 0.5 | 6.5 7.5 3.5 3 2 1 0.5 — 2 1 1 | 6·5 9 6·5 4·5 3 2·5 1·5 0·5 4·5 2 — | 15 20 10·5 5·5 2·5 2 1·5 1 4 2 ————————————————————————————————— | 25 23 9·5 5·5 3 4·5 3·5 1·5 2 5·5 3 | 34·5 30·5 16·5 11 5 2 1·5 1·5 3 4·5 1 0·5 1·5 | 21 27·5 13 11·5 4·5 2·5 2 1 1 1 | 33·5 30 13·5 5·5 3·5 4 4·5 3·5 5·5 1 1 | 27 34·5 16 11 6·5 5 1·5 1·5 1·5 1.5 | 26 26·5 14·5 10 5 3·5 2·5 0·5 1·5 7 4 0·5 2·5 | 33 31 12·5 9 6·5 5·5 4 1 1·5 4 1 1 | 16 21·5 13 10 4 1·5 1·5 0·5 — 1 1 | 245·5 262·5 129·5 89 47 36 29·5 13·5 14·5 41·5 21·5 6 10 |

Table XXX. Age of Father and Number of Living Children. Birmingham Data. Miss Jones' Series. Men under 43.

Age of Father

| | | 19— | 21— | 23— | 25— | 27— | 29— | 31 | 33— | 35— | 37— | 39— | 41— | Totals |
|---------------------------|--|-------|----------------------------------|------------------------|---|------------------------------------|--|---|---|---|--|--|---|--|
| Number of Living Children | 0 1 2 3 4 5 6 7 8 9 10 11 | 2 2 1 | 5 19 7 — — — — | 8 16 23 8 | 5 23 29 15 5 ————————————————————————————————— | 9 23 31 26 6 4 1 | 5 26 36 26 25 9 5 — | 3 6 25 32 24 17 5 — 1 | 4 13 23 25 35 18 11 5 2 | 3 10 20 28 38 26 13 3 2 | 1 14 13 21 26 23 18 9 6 1 | 2 13 13 22 14 24 14 11 9 4 1 3) | 3 6 9 11 16 13 11 10 5 3 | 48 171 231 215 189 134 78 38 25 8 |
| | Totals | 5 | 31 | 55 | 77 | 100 | 132 | 113 | 136 | 143 | 132 | 132 | 87 | 1143 |

Table XXXI. Wage of Father and Number of Living Children.
Birmingham Data. Miss Jones' Series. Men under 43.

Wage of Father in Shillings

| | | 9.5— | 13.5— | 17.5— | 21.5— | 25.5— | 29.5— | 33.5— | 37.5— | 41.5— | 45.5— | 49.5— | 53.5- | 57.5— | Totals |
|---------------------------|--|------|---|--|--|--|---|---|---|---|-------|-------|-------|-------|---|
| Number of Living Children | 0 1 2 3 4 5 6 7 8 9 10 11 12 | 1 | 1 4 5 6 - 2 2 - - | 13 36 50 32 35 24 9 8 2 ————————————————————————————————— | 13 51 60 63 40 29 15 6 8 2 1 | 4 15 31 30 26 23 14 9 2 2 | 2 22 23 20 30 17 10 1 6 2 — | 2 5 5 7 7 6 9 1 — | 2 1 9 5 9 .4 — 3 2 — | -2 1 6 6 -1 2 - - 1 | | 1 | 1 | 1 | 38 137 184 169 155 105 61 30 20 6 1 |
| | Totals | 1 | 20 | 211 | 289 | 156 | 134 | 42 | 35 | 19 | 0 | 2 | 1 | 1 | 911 |

Table XXXII. Age and Wage of Man. Birmingham Data.

Miss Jones' Series. Men under 43.

Age of Man

| | | 19— | 21— | 23 | 25— | 27— | 29 | 31— | 33— | 35— | 37 | 39— | 41— | Totals |
|--------------------------|--|-------|--|---|--|---|---|---|-------------------------------------|--|---|-----|--|--|
| Wage of Man in Shillings | 9·5— 13·5— 17·5— 21·5— 25·5— 29·5— 33·5— 37·5— 41·5— 45·5— 49·5— 53·5— 57·5— | 1 2 1 | - 11 9 1 2 - - - - | 3 11 19 6 3 2 - 1 - | -2 17 27 12 5 2 -1 | 2 25 28 7 18 1 4 — | 1 4 28 31 20 15 2 6 — | 1 14 26 25 12 2 1 3 — | 21 33 23 17 4 7 5 | 5 22 29 12 19 11 5 4 — | 1 16 34 20 12 11 5 2 - 1 | | 1 14 23 12 12 12 4 3 1 | 1 20 211 289 156 134 42 35 19 0 2 1 |
| | Totals | 4 | 23 | 45 | 66 | 85 | 107 | 84 | 110 | 108 | 103 | 106 | 70 | 911 |

Table XXXIII. Time out of Work and Number of Living Children.

Birmingham Data. Miss Jones' Series. Men over 42.

Number of Living Children

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Totals |
|--|---|--|---|--|---|---|--|---|------------|--|----|--|----|--|
| 0— 1— 2— 3— 4— 5— 6— 7— 8— 9— 14— 19— 24— Totals | 2 2 5 4.5 3 2 0.5 0.5 1 5.5 - 0.5 1.5 | 5 4·5 3·5 3 2 2 1·5 1·5 1 1·5 3·5 3·3 | 10 13·55 6·5 5·5 3 1·5 1 1 4 1 1 4 52 | 7 9·5 10 6 2·5 1 2 1 1·5 8·5 1 2 3 | 13·5 16 7 3 3·5 4·5 3·5 2·5 2·6·5 1 1·5 3·5 | 6.5 9.5 5 2.5 3 1.5 0.5 1 5.5 — 1 | 10·5 10 4 3·5 8·5 2 2 3 1·5 1 0·5 0·5 43 | 5.5.5 4.2.5 1.5 1.1 0.5 1 1 | 3 3 | 2·5 1·5 — 0·5 0·5 — — 0·5 0·5 — — 6 | | 0·5 2 0·5 — — — — — 0·5 0·5 | 0 | 62·5 77 49 31·5 22·5 17 13 10·5 10 35·5 6·5 7·5 17·5 |

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Table XXXIV. Time out of Work and Age of Man. Birmingham Data.

Miss Jones' Series. Men over 42.

Age of Man

| tuom a |) 8.5 15.5 8 | 15 13 | 9 | 9.5 | 9 | | | | | | | | | | |
|----------------------------|---|---|--|---|--|--|---------------------------------------|---|---------------------------------------|---|---|---|--|-----|--|
| # 5 6 7 8 9 14 19 24 19 24 | 3 5·5 4 3·5 3 1·5 7 0·5 3 1·5 3 3·5 4 1·5 3 1·5 3 1·5 5 1 1·5 | 8·5 6·5 4·5 3 2 0·5 8·5 1 1 | 7 5.5 4 2 1.5 1 0.5 1 4.5 — — 1 | 9·5 7 4·5 3 1·5 1 2·5 2·5 2 1 1 | 3 3·5 4 2·5 2 1 1 1·5 2 0·5 — 1·5 2·5 — 25 | 2 4 3 1.5 0.5 1 1.5 1 0.5 3 1 1 | 2·5 4 1·5 - 0·5 1·5 2 1 - 2 - 1·5 2·5 | 3·5 5 2·5 2 1 0·5 1 0·5 2 1 1 20 | 2·5 6 5 2·5 3·5 2 0·5 1 1 2 1 1·5 2·5 | 2·5 2 1 1 0·5 1 1 ————————————————————————————————— | 1.5 3 1 0.5 0.5 1 0.5 0.5 0.5 0.5 1.5 0.5 1.5 | 2 3·5 2 0·5 — — 1·5 0·5 — | 0.5 0.5 0.5 0.5 0.5 0.5 0.5 1 0.5 1.5 | 0.5 | 62·5 77 49 31·5 22·5 17 13 10·5 10 35·5 6·5 7·5 17·5 |

Table XXXV. Age of Father and Number of Living Children. Birmingham Data. Miss Jones' Series. Men over 42.

Age of Father

| | | 43— | 45— | 47— | 49— | 51 | 53— | 55 | 57 | 59— | 61 | 63 | 65 | 67— | 69— | Totals |
|---------------------------|--|---|---|--|--|----|--|---|-------------|--------------------------------|---|---|--|----------------------------|--------------------------------------|---|
| Number of Living Children | 0 1 2 3 4 5 6 7 8 9 10 11 12 | 3 2 6 10 15 9 7 2 2 1 1 | 3 7 13 11 16 6 9 8 2 1 | 3 1 9 9 4 3 9 3 1 1 | 5 6 9 8 11 8 6 2 1 | | 3 2 2 5 4 4 1 1 1 1 | 3 6 3 2 5 4 2 - 1 | 2 6 2 3 5 2 | 5 6 5 4 10 2 3 4 2 — — — — — — | 1 2 1 5 3 — 1 3 — 1 — — — — — — — — — — — — — — | 2 1 2 3 5 6 - - 1 | 1 1 3 - 3 2 1 2 1 1 | 1 3 4 2 1 — | 1 - - 3 - 2 - 1 | 33 44 61 70 86 53 58 36 11 9 2 4 |
| | Totals | 58 | 76 | 43 | 65 | 34 | 24 | 29 | 27 | 41 | 17 | 20 | 16 | 11 | 7 | 468 |

Table XXXVI. Wage of Father and Number of Living Children.

Birmingham Data. Miss Jones' Series. Men over 42.

Number of Living Children

| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | Totals |
|-----------------------------|--|----|---|---------------------|---|-------|----------------|--|---|---|-----|----|----|----|---|
| Wage of Father in Shillings | 9·5— 13·5— 17·5— 21·5— 25·5— 29·5— 33·5— 37·5— 41·5— 45·5— 49·5— 53·5— 57·5— | | 3 1 7 7 6 4 1 1 1 | 3 4 13 11 4 3 1 3 — | 1 1 8 12 17 6 3 7 — | 2 | -3 4 8 6 2 3 4 | - 4 12 12 12 7 4 3 3 | 1 6 5 7 2 2 2 2 1 | | 4 2 | | | 1 | 7 9 51 87 86 41 22 23 12 0 1 0 |
| | Totals | 23 | 31 | 42 | 55 | 66 | 30 | 45 | 27 | 7 | 6 | 2 | 4 | 1 | 339 |

Table XXXVII. Age and Wage of Man. Birmingham Data.

Miss Jones' Series. Men over 42.

Age of Man

| | | 43 | 45— | 47 | 49 | 51 | 53— | 55— | 57— | 59 | 61— | 63— | 65 | 67— | 69— | Totals |
|--------------------------|--|---|---|---|-----------------------------------|----|--------------------------------------|---------------|---------------------------------|--|---------------------------------|-----------------|--------------------------------------|-----|-----|--|
| Wage of Man in Shillings | 9·5— 13·5— 21·5— 21·5— 25·5— 29·5— 33·5— 37·5— 41·5— 45·5— 49·5— 53·5— 57·5— | 1 1 8 14 12 6 3 4 1 | 9 19 16 11 3 4 - 1 | 1 -6 5 12 4 3 2 2 - | 8 13 10 8 2 5 1 | | 1 2 6 4 1 1 1 - | 1 5 3 3 1 2 1 | 1 6 3 2 1 3 - | - 6 7 11 1 3 3 1 - | 1 1 1 2 5 1 — | 1 1 1 3 3 1 1 1 | 1 2 1 3 2 1 1 — | | | 7 9 51 87 86 41 22 23 12 0 1 |
| | Totals | 50 | 68 | 35 | 47 | 19 | 16 | 16 | 16 | 32 | 12 | 11 | 11 | 4 | 2 | 339 |

Table XXXVIII. Age of Husband and Wife. Birmingham Data. Miss Lamotte's Series. Husbands under 43.

Age of Husband

| | 17— 19— 21— 23— 25— 27— 29— 31— | 19— | 21— 20 29 12 1 1 — | 23— 9 47 45 20 1 1 | 25— 1 5 12 69 63 28 8 | 27— 4 14 35 72 80 19 5 | 29— 4 8 47 95 102 27 | 31— ——————————————————————————————————— | 33— — — — — 6 11 21 42 66 | 35— 1 6 11 27 42 | 37— 1 1 12 8 20 | 39— ——————————————————————————————————— | 41— ——————————————————————————————————— | Totals 2 40 113 179 232 293 285 269 |
|-------------|---|-----|---|---|------------------------|---|-----------------------|--|--|--|---|--|--|---|
| Age of Wife | 33— 35— 37— 39— 41— 43— 45— 47— 49— 51— 53— 55— 69— | | 1 | 1 | | 1 | 6 5 | 21 6 2 1 1 - - - : | 88 20 13 3 2 - 1 | 67 68 15 6 1 1 1 ———————————————————————————— | 25 64 56 20 3 4 2 1 — | 12 42 47 65 13 7 5 1 — | 3 19 17 29 38 11 2 2 ——————————————————————————————— | 225 225 151 124 58 23 10 5 0 1 |
| | Totals | 5 | 64 | 124 | 187 | 231 | 294 | 237 | 273 | 247 | 216 | 226 | 134 | 2238 |

Table XXXIX. Age of Wife and Wage of Husband. Birmingham Data. Miss Lamotte's Series. Men under 43.

| | | | | Wage | of Hus | sband i | n Shill | ings | |
|----|-----|----|----|------|--------|---------|---------|------|---|
| 6— | 10— | 14 | 18 | 22— | 26— | 30 — | 34 | 38— | 4 |

| | | 6 | 10— | 14 | 18 | 22— | 26— | 30 — | 34 | 38— | 42 | 46— | 50- | 54— | Totals |
|-------------|---|---------------|--|---------------------------------|---|--|--|---|--|-----|----|-----|---|-----|--|
| Age of Wife | 17— 19— 21— 23— 25— 27— 29— 31— 35— 35— 35— 41— 45— 45— 45— 45— 69— 69— | 2 3 2 4 2 3 3 | 2 3 2 5 8 5 3 4 6 3 2 2 1 1 | -3 10 8 14 5 14 11 10 5 6 9 2 1 | 2 20 42 50 57 93 57 63 40 42 24 21 14 4 2 | 9 33 73 69 86 90 74 72 71 45 39 16 9 2 3 | 3 9 20 41 46 46 54 30 33 23 14 1 1 — — — — — — — — — — — — — — — — | 3 12 18 34 30 44 32 41 36 24 17 6 5 2 1 | 2 3 17 13 15 20 11 17 18 5 2 2 2 | | | | 1 | 2 | 2 40 113 179 232 293 285 269 225 225 151 124 58 23 10 5 0 1 |
| | Totals | 19 | 48 | 98 | 532 | 693 | 344 | 305 | 110 | 71 | 10 | 1 | 5 | 2 | 2238 |

Table XL. Age of Mother and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Fathers under 43.

Number of Living Children

| | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Totals |
|---------------|---|-------------------|--|---|-----|--|-----|-----|----|---------------------|---------|-----|--|
| Age of Mother | 17— 19— 21— 23— 25— 27— 29— 31— 33— 35— 37— 39— 41— 43— 45— 45— 45— 51— 53— 55— 56— 60— | 10 11 7 4 1 1 1 1 | 2 28 66 67 77 55 42 29 25 21 8 17 6 2 3 1 | 2 35 77 67 87 76 45 38 37 18 19 7 3 2 1 | | 7 18 52 65 68 51 46 28 13 7 5 2 | | | | 3 2 7 7 4 1 1 : : : | 1 3 2 3 | 1 2 | 2 40 113 179 232 293 285 269 225 225 151 124 58 23 10 5 0 1 |
| | Totals | 37 | 450 | 517 | 443 | 363 | 224 | 122 | 42 | 24 | 9 | 7 | 2238 |

Table XLI. Wage of Father and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men under 43, when Wife's Age given.

Number of Living Children 0 10 | Totals 1 2 8 9 19 48 98 Wage of Father in Shillings 2 1 4 22 35 22 18 8 9 $\frac{4}{12}$ 10--14--18-- $\begin{array}{c} 2 \\ 4 \\ 16 \\ 9 \\ 2 \end{array}$ 13 1 1 6 7 2 3 3 1 1 8 17 6 3 3 20 $\begin{array}{c} 22 \\ 120 \end{array}$ 19 91 151 73 58 18 15 14 84 97 55 60 24 16 13 45 64 35 37 17 6 $\frac{-}{2}$ 135 140 3 2 532 22-26-693 344 305 110 169 65 54 15 5 84 65 20 15 5 3 30-34-1 71 10 42-<u>_</u> 1 3 50-Totals 37 450 517 443 224 122 42 24 9 2238 363

Table XLII. Age of Husband and Wife. Birmingham Data. Miss Lamotte's Series. Husbands over 42.

Age of Husband

73— Totals 43---45— 47---49-51- 53-55---59--- 61---63-65---67— 69— 71-75— 1 25— 25— 27— 29— 31— 33— 35— 1 <u>-</u> 3 2 4 1 _ 1 1 9 10 18 22 24 8 7 3 4 11 12 11 17 30 27 8 3 1 1 1 1 1 1 1 3 5 4 6 16 9 27 - $\frac{1}{3}$ $\frac{3}{2}$ $\frac{1}{6}$ $\frac{9}{16}$ $\frac{16}{17}$ $\frac{6}{6}$ $\frac{2}{10}$ 37— 39— 6 3 1 1 7 5 14 17 20 41— 43— 45— 47— 6 7 20 20 3 2 1 3 $-\frac{2}{2}$ $\frac{4}{7}$ $\frac{7}{8}$ $\frac{10}{7}$ $\frac{1}{3}$ 1 5 5 1 8 7 9 3 1 1 2 1 1 1 1 2 3 6 3 1 1 53— 55— 57— 59— <u>_</u> 3 2 3 3 1 2 4 14 3 63— 65— 67— 69— 71— 73— 75— 77— 1 <u>_</u> ____

50

37

26

17

17

4

773

49

Totals 106

125

88

85

67

73

Table XIII. Age of Father and Wage of Father. Birmingham Data.

Miss Lamotte's Series. Men over 42, when Wife's Age given.

Age of Father

| | | 43 | 45 | 47— | 49— | 51— | 53 | 55 | 57— | 59— | 61— | 63 | 65— | 67— | 69— | 71— | 73— | 75— | Totals |
|-----------------------------|--|---|--|--|---|--|--|--|---|--|---|---|--|--------------------------------------|-------|-----|-------------|-------|---|
| Wage of Father in Shillings | 2— 6— 10— 14— 18— 22— 30— 34— 38— 42— 46— 50— | 2 5 7 28 30 13 16 3 2 | 1 2 7 44 24 19 15 6 4 3 | 1 2 4 21 22 11 14 7 4 2 | 1 3 14 27 15 16 4 4 1 | - 2 4 12 16 11 13 8 - 1 | 1 4 4 17 23 10 8 2 4 | 1 1 11 19 9 2 2 2 2 1 | 2 4 3 13 15 3 3 6 1 | 1 1 2 2 16 8 3 3 1 | 1 1 1 8 7 2 1 1 1 | - 1 8 9 2 4 1 - - | - 2 1 8 2 1 2 - - 1 | - 1 1 7 5 2 - 1 | 1 1 2 | 1 | 1 1 - 1 - 1 | 1 - 1 | 3 10 28 41 209 208 102 100 35 27 9 0 |
| | Totals | 106 | 125 | 88 | 85 | 67 | 73 | 49 | 50 | 37 | 21 | 26 | 17 | 17 | 5 | 1 | 4 | 2 | 773 |

Table XLIV. Age of Mother and Wage of Father. Birmingham Data.

Miss Lamotte's Series. Men over 42.

Wage of Father in Shillings

| | | 2— | 6 | 10 | 14 | 18— | 22— | 26— | 30— | 34— | 38— | 42 | 46— | 50 | Totals |
|---------------|---|---|--|----|----|---|-----|-----|--|---|--|----|-----|----|---|
| Age of Mother | 23— 25— 27— 29— 31— 33— 35— 35— 41— 43— 45— 47— 49— 51— 55— 55— 66— 66— 67— 71— 71— 71— 71— 71— 71— | 1 | - - 1 1 2 - - - - - - - - - - - - - - - | | | 1 1 1 1 6 9 16 13 26 20 17 24 12 14 3 9 18 5 6 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | | 1 — 2 1 3 3 4 9 13 12 11 7 6 1 1 1 2 2 — — — — — — — — — — — — — — — | - 1 - 3 3 2 2 5 7 3 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | - - 1 - 1 - 3 - 4 - 2 1 3 2 2 3 3 2 - - - - - - - - - - - - - - | | | 1 | 2 0 1 1 7 11 27 38 51 55 73 87 68 84 54 58 31 22 41 17 16 16 16 16 17 16 16 16 16 16 16 16 16 16 16 16 16 16 |
| | Totals | 3 | 10 | 28 | 41 | 209 | 208 | 102 | 100 | 35 | 27 | 9 | 0 | 1 | 773 |

Table XLV. Age of Father and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42, when Wife's Age given.

Number of Living Children Totals 43— 45— 47— 15 18 10 12 6 6 4 6 6 8 6 2 2 3 2 125 88 85 67 73 49 50 37 21 26 17 17 16 14 15 12 10 7 9 3 4 2 2 3 1 15 16 17 14 10 17 12 12 13 17 11 13 10 12 5 14 7 4 5 8 6 2 49— 51— 53— 55— 57— 61— 63— 65— 67— 71— 73— 75— 6 2 4 4 1 1 6 4 6 3 _ _ _ _ 1 _ _ 4 _ Totals

Table XLVI. Age of Mother and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42.

Number of Living Children Totals 23 — 25 — 27 — 29 — 1 1 3 3 4 2 1 1 3 2 3 1 8 1 3 6 6 9 6 8 6 14 17 10 6 1 3 9 1 5 2 3 5 10 1 1 2 3 6 3 6 11 27 38 51 55 73 87 68 84 54 58 31 22 41 17 16 14 8 4 33-_ 2 2 35— 37— 39— 1 3 7 5 6 13 8 12 41-43-10 16 13 17 11 5 3 6 5 2 2 2 2 13 5 4 6 3 8 1 3 5 3 2 1 2 1 12 12 9 6 9 9 1 5 3 45— 47— 49— 51— 53— 11 2 8 3 3 5 3 7 5 55— 57— 59— 61— 63— 65--67--71— 73— 75— 77— T Totals 74 97 | 114

Table XLVII. Father's Wage and Number of Living Children. Birmingham Data. Miss Lamotte's Series. Men over 42, when Wife's Age given.

| | | | | | | Nu | mber o | f Livin | g Child | lren | | | | | |
|-----------------------------|---|--|--|---|---|---|--|---|--|--|-----------|----|----|----|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
| Wage of Father in Shillings | 2— 6— 10— 14— 18— 22— 26— 30— 34— 38— 42— 46— 50— | 3 2 5 21 15 10 12 1 2 2 | - 1 4 35 33 8 9 3 3 1 | 1 1 3 6 30 39 12 13 6 2 1 | 2 9 5 28 38 25 10 6 5 | 5 4 29 28 14 13 8 3 1 | 2 4 7 25 13 13 20 3 4 1 | 2 -2 6 19 21 9 9 4 4 3 | - 1 1 2 9 10 3 6 1 2 - | - 1 2 7 6 3 6 2 1 - | 3 4 3 2 1 | | | 1 | 3 10 28 41 209 208 102 100 35 27 9 0 |
| | Totals | 74 | 97 | 114 | 128 | 105 | 92 | 79 | 35 | 28 | 13 | 5 | 2 | 1 | 773 |

Table XLVIII. Age of Father and Gross Size of Family. Royal Albert Asylum.

| 1 2 3 4 5 6 7 8 9 10 21 1 - - - - - - - | 11 | 12 | 13 | 14 | Totals |
|---|----|----|----|----|--|
| 91 1 | | | | | 1 |
| 222 | | | | | 0 1 0 2 0 2 4 7 15 20 18 21 40 45 36 40 49 60 70 34 45 44 38 29 27 |

Table XLIX. Age of Father and Net Size of Family. Royal Albert Asylum.

Net Size of Family

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
|---------------|--|--|--|---|---|---|---|---|---|---|---------------|-----|----|----|--|
| Age of Father | 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 | 1 — 2 — 1 5 2 1 1 1 2 3 3 2 2 1 2 3 5 — 49 | - 1 - 1 1 2 2 1 8 3 3 5 2 2 3 5 4 5 3 1 | | | | | | | | 1 1 1 1 1 1 1 | 1 4 | 1 | 1 | 1 0 1 0 2 0 2 4 7 15 20 18 21 40 45 36 40 49 60 70 34 44 32 44 32 27 724 |

Table L. Gross Size of Family and Age of Mother. Royal Albert Asylum.

Gross Size of Family

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Totals |
|--|---|---|----|----|-----|----|-----|----|----|----|----|----|----|----|--|
| 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 | - 1 2 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | 1 1 1 - 3 2 1 3 1 3 2 1 1 2 4 1 2 1 3 - - - - - - - - - - - - - - - - - - | | | | | | | | | | | | | 1 1 1 4 2 3 13 15 23 21 29 41 40 58 46 49 48 40 53 36 39 48 33 30 19 19 19 19 19 19 19 19 19 19 19 19 19 |
| Totals | 23 | 40 | 67 | 86 | 110 | 98 | 109 | 62 | 51 | 36 | 19 | 15 | 4 | 4 | 724 |

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Table LI. Age of Mother and Net Size of Family. Royal Albert Asylum.

| | | | | | | | Net Siz | ze oi r | amily | | | | | | |
|---------------|--|---------------------------------|---|--|-----|-----|---------|---------|-------|----|-----------|----|----|----|--|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
| Age of Mother | 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 | 1 2 2 3 3 5 5 7 1 2 2 2 2 2 2 2 | 1 -1 1 -2 4 5 2 4 1 4 4 1 4 4 3 6 1 3 5 3 4 4 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 | 2 3 8 7 6 6 10 12 7 3 6 12 3 7 8 4 3 5 4 1 1 | | | | | | | 1 1 1 1 1 | | | 1 | 1 1 4 2 3 13 15 23 21 29 41 40 58 46 49 48 40 53 36 39 48 30 19 19 5 4 4 |
| | Totals | 49 | 72 | 122 | 130 | 120 | 109 | 61 | 31 | 19 | 4 | 5 | 1 | 1 | 724 |

Table LII. Age of Father and Weekly Income of Father.
Royal Albert Asylum.

Age of Father

| | | 21 | 23— | 25— | 27— | 29— | 31 | 33— | 35— | 37— | 39— | 41 | 43 | 45 | 47 | Totals |
|--------------------------------------|--|----|-----|-----|-----------|-----|----|-----|-----|--|---------------------------------------|----|---|--|----|--|
| Weekly Income of Father in Shillings | 6, 7 8, 9 10, 11 12, 13 14, 15 16, 17 18, 19 20, 21 22, 23 24, 25 26, 27 28, 29 30, 31 32, 33 34, 35 36, 37 38, 39 40, 41 42, 43 44, 45 46, 47 48, 49 50, 51 52, 53 54, 55 56, 57 | 1 | 1 | 1 | 2 2 1 1 1 | | | | | 77 16 5 8 4 4 8 11 5 2 4 4 3 4 — 1 1 1 — — — — — — — — — — — — — — — | ————————————————————————————————————— | | - - 1 1 3 4 12 7 9 4 4 7 9 3 2 1 1 5 2 1 - - - - - - - - - - - - - - - - - - | 1 — 2 3 6 6 9 4 13 6 8 5 5 5 1 1 2 1 1 2 1 3 — 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | | 1 0 2 2 7 17 29 58 130 55 88 42 47 73 28 35 16 20 6 11 7 2 10 5 4 12 0 6 6 |
| 1 | Totals | 1 | 1 | 2 | 6 | 22 | 38 | 61 | 81 | 89 | 130 | 79 | 76 | 82 | 56 | 724 |

Table LIII. Age of Mother and Weekly Income of Father. Royal Albert Asylum.

Age of Mother

| | | 23 | 25— | 27— | 29— | 31— | 33— | 35 | 37— | 39— | 41 | 43 | 45— | 47 | 49— | Totals |
|--------------------------------------|--|----|-----|---------------------|-----|-----|-----|-----|-----|-----|---|----|-----|--|-----|--|
| Weekly Income of Father in Shillings | 6, 7 8, 9 10, 11 12, 13 14, 15 16, 17 18, 19 20, 21 22, 23 24, 25 26, 27 28, 29 30, 31 32, 33 34, 35 36, 37 38, 39 40, 41 42, 43 44, 45 46, 47 48, 49 50, 50 50, 50 56, 57 60 | 1 | | 3 1 1 2 3 2 2 3 - 1 | | | | | | | 1 — 1 — 1 1 2 5 — 2 3 2 1 1 — 1 — 1 — — 1 — — 1 — — 1 — — — — | | | 1 3 4 1 2 1 1 2 3 - | | 1 0 2 7 17 29 58 130 55 88 42 47 73 28 35 13 16 20 6 11 7 2 10 5 5 |
| | Totals | 2 | 6 | 16 | 38 | 50 | 81 | 104 | 97 | 93 | 75 | 81 | 49 | 24 | 8 | 724 |

Table LIV. Age of Mother and Age of Father. Royal Albert Asylum.

Age of Mother 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 Totals

| 21 22 23 24 25 25 26 27 28 29 36 36 36 37 36 41 41 45 44 45 44 45 46 46 46 46 46 46 46 46 46 46 46 46 46 | 2 | 1 | 1 | 1 | 1 | 1111 | 1 1 2 4 4 | | | | | 1 1 - 3 1 3 7 6 5 4 5 2 2 2 1 | - | | | | | | | | | | 222455665 | 1 2 3 7 6 4 4 4 | 1 1 2 3 2 7 1 2 | | | | | 1 0 1 0 2 0 2 4 7 15 20 18 21 40 45 36 40 49 60 70 34 44 32 44 32 44 32 47 | |
|--|-----|---|---|---|---|------|-----------|----|----|----|----|---|----|----|----|----|----|----|----|----|----|----|-----------|-----------------|-----------------|----|---|---|---|---|--|
| Tota | als | 1 | 1 | 4 | 2 | 3 | 13 | 15 | 23 | 21 | 29 | 41 | 40 | 58 | 46 | 49 | 48 | 40 | 53 | 36 | 39 | 48 | 33 | 30 | 19 | 19 | 5 | 4 | 4 | 724 | |

Table LV. Gross Size of Family and Weekly Income of Father.
Royal Albert Asylum.

| Gross | Siza | οf | Fam | ilv |
|-------|------|-------|-----|-------|
| UIUSS | DIVE | o_1 | Pan | ULL V |

| 6, 7 |
|--------|
| 10, 11 |
| |

Table LVI. Net Size of Family and Weekly Income of Father.

Royal Albert Asylum.

Net Size of Family

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | Totals |
|--------------------------------------|--|---|---|---|-----|-----|-----|----|----|---|----|----|----|----|--|
| Weekly Income of Father in Shillings | 6, 7 8, 9 10, 11 12, 13 14, 15 16, 17 18, 19 20, 21 22, 23 24, 25 26, 27 28, 29 33 34, 35 36, 37 34, 35 36, 37 40, 41 42, 43 44, 45 46, 47 50, 51 54, 55 56, 57 58, 59 | - 1 - 3 2 5 10 3 5 - 6 1 2 1 1 1 1 - 2 - 2 | - 1 - 4 - 16 - 5 - 10 - 6 - 3 - 3 - 2 - 1 2 - 1 - 1 - 1 - 2 | 1 — 1 4 3 8 20 11 14 7 10 8 4 6 4 4 4 — 3 2 — 1 — 1 4 — 2 | | | | | | 3 2 1 4 2 2 3 1 - | 1 | | 1 | | 1 0 2 7 17 29 58 130 55 88 42 47 73 28 35 113 16 20 6 6 11 7 2 10 6 6 |
| | Totals | 49 | 72 | 122 | 130 | 120 | 109 | 61 | 31 | 19 | 4 | 5 | 1 | 1 | 724 |

Table LVII. Gross Family and Net Family. Royal Albert Asylum.

Gross Size of Family

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Totals |
|--------------------|---|----|-------|--------------------|-----------------------------------|--------------------------------|---|--|---|---|---|---|--|----|----|--|
| Net Size of Family | 1 2 3 4 5 6 7 8 9 10 11 12 13 | 23 | 10 30 | 8 18 41 — | 1 9 36 40 — — — | 3 13 25 33 36 — | 1 1 6 25 34 31 — — | 1 7 16 27 35 23 — — | 1 4 6 11 20 13 7 — | 2 -1 4 4 11 13 12 4 - | - 1 4 5 7 5 5 8 1 | - 1 1 3 5 3 4 1 1 | - - 1 3 - 1 4 2 1 3 | | | 49 72 122 130 120 109 61 31 19 4 5 |
| | Totals | 23 | 40 | 67 | 86 | 110 | 98 | 109 | 62 | 51 | 36 | 19 | 15 | 4 | 4 | 724 |

Table LVIII. Age of Imbecile and his Place in Family.

Royal Albert Asylum. (Males.)

Age of Imbecile at Admission

| Place in Family | 1 2 3 4 5 6 7 8 9 | 1 | 3 1 - 1 | 12 5 7 2 - 1 | 7 28 14 9 8 6 1 3 - | 31 21 21·5 12·5 9 3 2 4 5 | 30 23 15 14 7 9 2 5 | 27 22 13 8 6 3 2 3 | 32 30 14 5 8 5 3 10 1 | 32 21 18 3 10 6 2 7 3 2 | 39 12 10 16 8 6 3 1 | 27.5 19.5 11 9 11 5 4 1 | 37·5 22·5 11 6 4·5 5·5 3 1 | 16 | 14 13 6·5 3·5 3 4 2·5 1·5 | 13 9 3 1 1 2 2 3 1 |
|-----------------|---|---|---------|-----------------------------|---|---|--|---|---|--|--|--|----------------------------|--------|--|--|
| 113 | 5 | | 1 | | | | | | | | | | | | | |
| Lm. | | _ | - | | | | | | | | | | 5.2 | | | |
| F | | _ | - | | | | | | | | | | | | | |
| ï | | | | | | | 5 | | | | | | | | | |
| 9 | | | | | | | | Э | | | | | 1 | ± | 1 | |
| Jac | 11 | | | | | 2 | | | | 2 | 1 | | 1 | | 1 | 2 |
| [min] | 12 | | | | 1 | | | .5 | — | 3 | | | | _ | _ | - 1 |
| | 13 | | | | 1 | | | •5 | | - | | 1 | _ | | | — I |
| | 14 15 | | | 107.00 | or Fernando | 1000-0-0 | 1 | | 1 | - | | | | | | |
| | 19 | | | | | - | | 1 | uponida. | | _ | | | 1 | | |
| | | | | | | | | | | | | | | | | |
| | Totals | 1 | 5 | 33 | 74 | 111 | 107 | 94 | 110 | 109 | 102 | 94 | 92 | 77 | 50 | 37 |

Table continued.

Age of Imbecile at Admission

| | 1 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | .31 | 32 | 33 | Totals |
|-----------------|--|-----------------|---------------|-------|-------|----|----|-----------|----|----|----|----|----|-----|----|-----|--|
| Place in Family | 1 2 3 4 5 6 7 7 8 9 10 11 12 13 14 15 Totals | 7 3 2 1 2 1 - 1 | 8 2 1 - 1 1 1 | 1 1 2 | 2 1 1 | 1 | 1 | 1 1 1 - 1 | 1 | 1 | 0 | 0 | 1 | 1 | | 1 1 | 367 234-5 155-5 104 91-5 58-5 30-5 49-5 22 8 10 6-5 2-5 2 |
| ! | Totals | 17 | 13 | 2 | 9 | 1 | 1 | 3 | 1 | 1 | -0 | | | | 0 | | 1144 |

The decimals arise from twins.

Table LIX. Gross Size of Family and Age of Imbecile at Admission.

Royal Albert Asylum. (Males.)

| | | | | | | Age | of Im | becil | e at | Admi | ission | | | | | | |
|----------------------|---|---|---|---|----------------------------|--|---|--|---|--|---|------------------------------------|---|--|--|--|---|
| | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
| Gross Size of Family | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 | 1 | 1 1 2 1 - - - - - | 8 4 6 3 4 3 .3 - 1 1 - - | 9 4 19 8 10 11 6 3 1 1 - 1 | 14 6 14 17 11 13 11 10 6 6 2 — 1 | 7 8 19 14 14 16 10 7 6 2 3 - - 1 | 10 5 9 13 12 14 14 6 5 2 2 - 1 - 1 | 6 7 11 18 12 15 13 10 7 5 3 1 — | 7 6 12 12 13 14 11 10 8 3 4 6 1 - | 14 7 5 7 17 10 17 4 7 6 6 2 — | 7 4 11 12 11 10 11 9 6 6 3 3 1 — — | 8 14 8 8 15 11 9 9 6 2 2 - | 6 1 7 10 11 8 8 4 9 8 2 2 — 1 | 3 5 4 6 4 2 5 8 6 3 2 1 | 4 2 2 7 2 1 3 7 3 1 2 2 - 1 | 2 1 1 3 2 2 3 -1 1 1 |
| | Totals | 1 | 5 | 33 | 74 | 111 | 107 | 94 | 110 | 109 | 102 | 94 | 92 | 77 | 50 | 37 | 17 |

Table continued.

Age of Imbecile at Admission

| | | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | Totals |
|----------------------|---|---|---|---|----|----|----|----|----|----|----|----|----|----|-------|---|
| Gross Size of Family | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 | 2 4 - 1 5 - 1 - - | 1 | 2 - - 1 - - 2 - - | 1 | 1 | | 1 | 1 | | | 1 | 1 | | 1 - 1 | 110 80 128 143 140 136 126 89 75 47 32 21 6 5 4 |
| | Totals | 13 | 2 | 5 | 1 | 1 | 3 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 1144 |

ON THE CORRELATION OF FERTILITY WITH SOCIAL VALUE

TABLE LX. Gross Size of Family and Place in Family of Imbecile. Royal Albert Asylum. (Males.) (x)+(x)

| 0 | gerry | otre | ning |
|-----|----------|-------|------|
| 20 | 8 pera | | |
| (4) | 8 perces | 20000 | 244 |

| 63 | | the | ing |
|-------|-------|------|------|
| S F | my. | | 0 |
| (2) 8 | penal | cons | w |
| (| alcon | ouse | u. |
| | twee | un | 100 |
| | | | |
| | | | Alic |
| chron | n nu | Mus | Hami |
| | 111 | | - |

| Place | in | Family | of | Imbecile |
|-------|----|--------|----|----------|
|-------|----|--------|----|----------|

| | | - | | _ | | - | | | 1 | | | | - | | | | |
|---------|----------------|-----------------|----------------|------------------|-----------------|---------------|----------------|-----------|------|---------|-----|-------------|-------|----------|-----|----|-------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Totals |
| | 1 2 3 | 110 37 50 | 43 38 | 40 | | _ | _ | _ | | _ | _ | = | = | = | = | _ | 110 80 128 |
| 113 | 5 | 44 45 | 42 32 | 33.5 | 23.5 | 27 19 | - | _ | | _ | | = | Ξ | = | _ | | 143 140 136 |
| Family | 6 7 8 | 31 24 9 | 29 20 14 | 17 25 11·5 | 23 17 8·5 | 19 15 8 | 17 12 12 | 13 7·5 | 18.5 | _ | _ | = | | _ | _ | | 126 89 |
| Size of | 9 10 | 10 2 | 7·5 5 | 7·5 4 | 7 2 | 9·5 10 | 7·5 5 | 3 | 11 7 | 12 5 | 4 | - | _ | - | _ | = | 75 47 |
| _ | 11 12 13 | 3 2 | 3 1 | 1 - | 2 | 1 | 5 | 3 | 8 3 | 1 | 2 2 | 3 2 2 | 4 2.5 | - 1·5 | _ | = | 32 21 6 |
| Gross | 14 15 | _ | | _ | _ | 1 | | _ | 2 | = | _ | 1 | | ī _ | 1 1 | | 5 4 |
| | 16 17 | | = | - | | = | = | _ | _ | _ | = | 2 | - | _ | _ | _ | 0 2 |
| 4 | Totals | 367 | 234.5 | 155.5 | 104 | 91.5 | 58.5 | 30.5 | 49.5 | 22 | 8 | 10 | 6.5 | 2.5 | 2 | 2 | 1144 |

The decimals arise from twins.

Table LXI. Gross Size of Family and Place in Family of Imbecile. (Males.) Royal Albert Asylum. Independent Probability Table.

Place in Family of Imbecile

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | Totals |
|---------------------------------------|--|---|---|--|--|------------------------------------|---------------------------------------|-----------------------------|---|----|----|----|----|-----|----|--|
| Gross Size of Family 11 12 13 - Total | 110 41·8 48·6 44·0 34·9 29·1 24·3 13·4 9·7 5·6 3·1 1·5 1·0 | 38·2 44·3 40·0 31·9 26·6 22·1 12·3 8·9 5·1 2·9 1·7 ·5 | 35·1 31·7 25·3 21·0 17·5 9·7 7·1 4·05 2·3 1·2 ·55 | 27·3 21·8 18·2 15·2 8·4 6·1 3·5 2·0 1·0 ·5 | 26·1 21·7 18·1 10·0 7·3 4·15 2·3 1·2 ·65 | 19·4 16·2 8·9 6·5 3·75 2·1 1·1 ·55 | 12·6 7·0 5·1 1·6 ·9 ·4 | 19·3 14·1 8·05 4·5 2·4 1·15 | | | | | | 2.0 | | 110 80 128 143 140 136 126 89 75 47 32 21 17 |

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